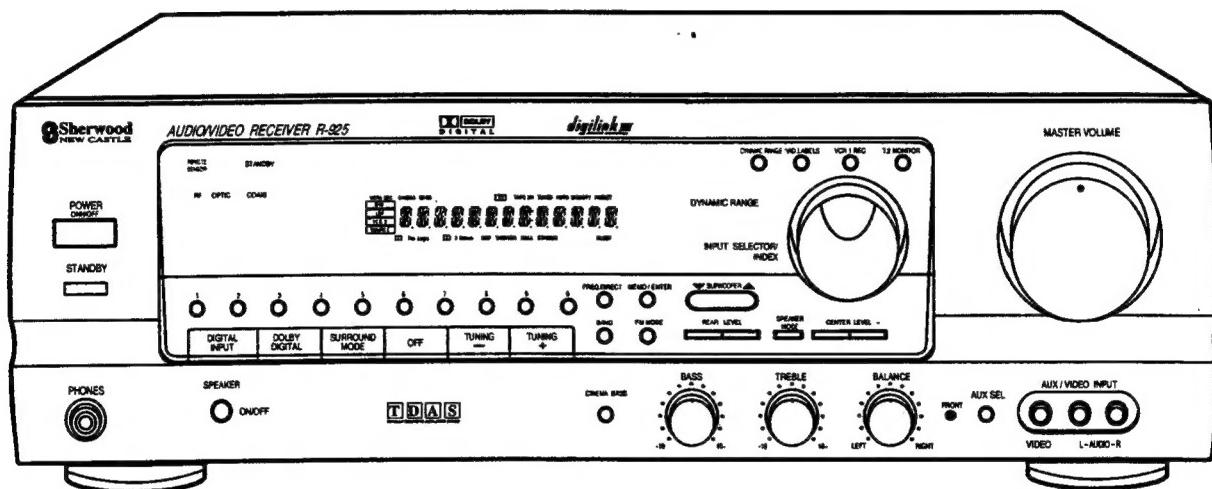


# SERVICE MANUAL

## R-925R / R-925RDS AUDIO/VIDEO AC-3, PRO-LOGIC RECEIVER



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 **Sherwood®**

## SAFETY PRECAUTIONS

### WARNING

Before servicing this unit, familiarize yourself with the following precautions:

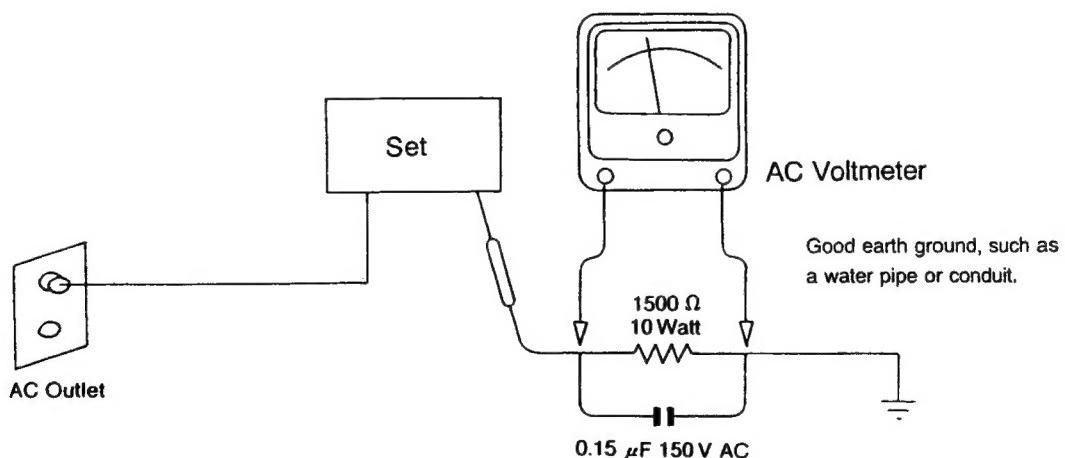
1. Many electrical and mechanical parts in this chassis have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by  $\triangle$  in the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the

exposed metal parts of the cabinet, such as terminals, screw heads, and metal overlays, to be sure the set is safe to operate danger of electrical shock. Plug the AC line cord directly into a 120 V AC outlet (120 V AC version only). (Do not use a line isolation transformer during this check.) Be sure your AC voltmeter has a sensitivity of 5000  $\Omega$  per volt or greater. Then connect a 1500  $\Omega$  10 watt resistor, paralleled by a 0.15  $\mu\text{F}$  150 V AC capacitor, between a known good earth ground (such as a water pipe, or conduit) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of a 1500  $\Omega$  resistor and a 0.15  $\mu\text{F}$  capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75V RMS. This corresponds to 0.2 mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

At 5000  $\Omega$  per volt or greater sensitivity,  
the reading should not exceed 0.75 V.



Place the probe on each exposed metallic part.

# SPECIFICATIONS

## ● FRONT AMP SECTION (ALL)

Measuring methods are based on IHF and IEC standard 268-3

Measurements conditions,unless otherwise noted :

Output resistive load = (8) ohms / Both channel driven

Tone(Bass,Treble), Balance, EQ control : Center Position , Other SW's : OFF

Nominal input level : 5mV for MM, 0.5mV for MC, 500mV for general purpose inputs

Power figures should be kept minimum 10min. between 15 and 35°C

Terminator : 100ohm for MC, 1kohm for MM and general purpose inputs

Filter : IHF-A filter.

R/O = Rated Output

NO	DESCRIPTION	INPUT	FREQ.	REMARK	UNIT	LIMIT L/R	NOMINAL L/R
1	INPUT SENSITIVITY	CD	1kHz		mV	200±30	200±20
		MM	1kHz		mV	3.5±0.5	3.5±0.3
		MC	1kHz		mV		
		MIC	1kHz		mV		
2	CHANNEL BALANCE	CD	1kHz	R/O TO -40dB	dB	±3	±2
			1kHz				
3	DAMPING FACTOR	CD	1kHz				
4	RESIDUAL NOISE	CD	1kHz	VOL min.	mV	≤1	
			1kHz	VOL max.	mV		
5	TOTAL HARMONIC DISTORTION	CD(500mV)	(20)Hz	R/O / 1W	%	≤0.2	≤0.09
			1kHz	"	%	≤0.2	≤0.09
			(20)KHz	"	%	≤0.3	≤0.2
6	CONTINUOUS AVERAGE POWER at (0.2)% THD	CD	(20)Hz	(8)ohms	W	100	102
			1kHz	"	W	100	102
			(20)KHz	"	W	100	102
7	IMD(SMPTE)	CD(500mV)	60Hz=4	R/O	%	≤0.1	≤0.07
			7kHz=1	1W	%	≤0.1	≤0.07
8	S/N RATIO,IHF-A FILTER	CD(500mV)	1kHz	R/O	dB	≥90	≥93
			1kHz	1W	dB		
		MM(5mV)	1kHz	R/O	dB	≥68	≥72
			1kHz	1W	dB		
		MC(0.5mV)	1kHz	R/O	dB		
			1kHz	1W	dB		
9	CHANNEL SEPARATION	CD(500mV)	100Hz	R/O-3dB	dB	≥45	≥55
			1kHz	"	dB	≥45	≥55
			10kHz	"	dB	≥40	≥45
10	FUNCTION CROSSTALK	CD→AUX	1/10 kHz	"	dB	≥60/40	≥65/45
		CD→MM	1/10 kHz	"	dB	≥60/40	≥65/45
		MM→CD	1/10 kHz	"	dB	≥60/40	≥65/45
		→	1/10 kHz	"	dB		
11	FREQUENCY RESPONSE (-3dB)	CD(500mV)		1W	Hz~kHz	20~50	10~60
12	TONE CONTROL , ±(10)dB	CD	100Hz	1W	dB	±10±2	±10±1
			10kHz	"	dB	±10±2	±10±1
13	SUBWOOFER OUT (1ch input)	CD(200mV)	30Hz	M-Vol Max	V	1.6±0.3	1.6±0.2
14	PHONO EQUALIZATION	W	100Hz	TAPE OUT	dB	+13.1±1.5	+13.1±1
			10KHz	"	dB	-13.7±1.5	-13.7±1
15	INPUT OVERLOAD at 0.5% THD	CD	1kHz	S/P OUT	mV		
		MM	1kHz	TAPE OUT	mV	≥120	≥140
		MC	1kHz	"	mV		
		MIC	1kHz	"	mV		

NO	DESCRIPTION	INPUT	FREQ.	REMARK	UNIT	LIMIT L/R	NOMINAL L/R
16	HEADPHONE OUTPUT H/P = 64ohms	CD (150)mV	1kHz	R/O	mV		
			1kHz	R/O	mV		
17	FTC POWER 20Hz~20kHz at ( )% THD	CD	20Hz	"	W		
			1kHz	"	W		
			20kHz	"	W		
18	DIN POWER at 1% THD	CD	1kHz	"	W		
19	DYNAMIC POWER OUTPUT 20 cycle ON,480 cycle OFF	CD	1kHz	( )ohms	W		
20	POWER BANDWIDTH -3dB	CD		R/O	Hz~kHz		
21	SLEW RATE	CD	1kHz	R/O	V/usec		
22	SLEW-FACTOR	CD(500mV)					
23	INPUT IMPEDANCE	CD	1kHz		kohm		
		MM	1kHz		kohm		
		MC	1kHz		kohm		
		MIC	1kHz		kohm		

### ● REAR AMP SECTION

Measurements conditions : Input level (350mV)

Rear level max., Master volume adj.Delay time 20ms

NO	DESCRIPTION	INPUT	FREQ.	REMARK	UNIT	LIMIT L/R	NOMINAL L/R
1	POWER OUTPUT 1% THD	CD	1kHz	(8)ohms	W	≥ 90	≥93
2	TOTAL HARMONIC DISTORTION	CD	1kHz	1W	%	≤ 1	≤0.7
3	S/N RATIO DOLBY IHF-A FILTER, THEATER HALL STADIUM CHURCH	CD		R/O	dB	≥ 55	≥63
		CD		"	dB	≥ 55	≥63
		CD		"	dB	≥ 55	≥63
		CD		"	dB	≥ 55	≥63
		CD		"	dB	≥ 55	≥63
4	FRE RES.(ONLY DOLBY) ±3dB	CD	1kHz	1W	Hz~kHz	100~6	80~7

### ● CENTER AMP SECTION

Measurements conditions : Input level (350mV)

Center level max., Master volume adj.

NO	DESCRIPTION	INPUT	FREQ.	REMARK	UNIT	LIMIT L/R	NOMINAL L/R
1	POWER OUTPUT at 0.3% THD	CD	1kHz	(8)ohms	W	≥ 90	≥93
2	TOTAL HARMONIC DISTORTION	CD	1kHz	1W	%	≤ 0.3	≤0.2
3	S/N RATIO,IHF-A FILTER	CD		R/O	dB	≥ 55	≥60
4	FRE. RESPONSE LARGE DOLBY MODE SMALL	CD		1W	Hz~kHz	20~18K	15~20K
		CD		1W	Hz~kHz	135~18K	120~20K

### ● VIDEO SECTION

NO	DESCRIPTION	INPUT	FREQ.	REMARK	UNIT	LIMIT L/R	NOMINAL L/R
1	OUTPUT LEVEL at 75ohms	VCR1(1Vp-p)	1MHz		Vp-p	1±0.2	1±0.1
2	FREQUENCY RESPONSE	"	1MHz		Hz~MHz	DC~6	DC6,3
3	S/N RATIO	"	1MHz		dB	40	45
4	CROSSTALK	"	1MHz		dB	40	45

## ● AC-3 SECTION (ALL)

Measurements conditions,unless otherwise noted : Input Function : LD

Digital Input Mode : LD RF

Speaker Mode : Center:LARGE, Sub-Woofer:YES

Main Vol Position : 1 Vrms Output Position

Trim Vol Position : All "0 dB"

Test Point : Pre-Out

Test disc : DOLBY TEST LD VERSION 1.0

Center, Rear delay : 0 ms

NO	DESCRIPTION		SIGNAL	INPUT	CHAPTER	UNIT	LIMIT	NOMINAL
1	Output Level		1kHz	0dB	38	V	$0.9 \pm 0.3$	$0.9 \pm 0.2$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
	Main Vol Level : "58"Position		30Hz	0dB	18	V	$3.0 \pm 0.8$	$3.0 \pm 0.5$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
2	Output Level		1kHz	0dB	38	mV	$\leq 0.2$	$\leq 0.15$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
	at MIN.VOL.		30Hz	0dB	18	mV	$\leq 0.2$	$\leq 0.15$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
3	S/N Ratio	PRE-OUT : 100mV "A"Weighted	1kHz	-20dB	6	dB	$\geq 60$	$\geq 65$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		PRE-OUT : 1V Unweighted	30Hz	0dB	18	dB	$\geq 60$	$\geq 65$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
4	T.H.D	PRE-OUT : 100mV	1kHz	-20dB	6	%	$\leq 0.5$	$\leq 0.3$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		PRE-OUT : 1V	30Hz	0dB	18	%	$\leq 0.3$	$\leq 0.2$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
5	Channel Separation	L	1kHz	0dB	8	dB	Other Channel	
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		C	1kHz	0dB	10	dB	$\geq 60$	$\geq 65$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		R	1kHz	0dB	12	dB	L <-> R	
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		LS	1kHz	0dB	14	dB	$\geq 50$	$\geq 5$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		RS	1kHz	0dB	16	dB	ALL <-> Sub-Woofer	
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
6	Frequency Response	Sub-woofer:YES Center:SMALL	30Hz (1kHz)	0dB	20 (38 :ref)	dB	$\leq -15$	$\leq -20$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
	at M-Vol Level:"50"	Rear:Yes	1kHz (30Hz)	0dB	38 (20 :ref)	dB	$\leq -30$	$\leq -35$
	<b>MEASUREMENT</b>		L	C	R	LS	RS	<b>SW</b>
		Sub-woofer:NO Center:LARGE	30Hz (1kHz)	0dB	20 (38 :ref)	dB	$8.5 \pm 1.5$	$8.5 \pm 1$
<b>MEASUREMENT</b>			L	C	R	LS	RS	<b>SW</b>

NO	DESCRIPTION		SIGNAL	INPUT	CHAPTER	UNIT	LIMIT	NOMINAL
7	Dialog Normalization		1kHz	0dB	43	dB	-10±1	-10±0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Main Vol Level : "50"Position		30Hz	0dB	43	dB	-10±1	-10±0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
8	Down Mix level	AC-3 mode						
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Main Vol Level :	Stereo Key : ON	1kHz	0dB	38	dB	-3.2±0.5	-3.2±0.3
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	"50"Position	Sub-woofer : NO						
9	Down Mix Frequency Response							
	Main Vol Level : "50"Position	same as above	30Hz(1kHz)	0dB	20(38:ref)	dB	±1	±0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
10	Channel across level	C-> L, R Center 0dB Setting Center : No	1kHz	0dB	10	dB	-3 ± 1	-3 ± 0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Main Vol level	Ls-> L Ls 0dB Setting Rear : No	1kHz	0dB	14	dB	-3 ± 1	-3 ± 0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	"58" Position	Rs-> R Rs 0dB Setting Rear : No	1kHz	0dB	16	dB	-3 ± 1	-3 ± 0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
		SubWoofer-> L, R Sub 0dB Setting , Sub : No	30Hz	0dB	18	dB	-5.5 ± 1	-5.5 ± 0.5
11	LFE Signal across level		30Hz	0dB	20	V	1.8 ± 0.5	1.8 ± 0.3
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Main Vol level	L/C/R/Ls/Rs -> Sub Out (2) (1): 0dB, Stereo: On, Sub: Yes	30Hz	0dB	20	dB	-11 ± 2	-11 ± 1
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	"50" Position	C/Ls/Rs -> L, R (3) (2): 0dB, Stereo: On, Sub: No	30Hz	0dB	20	dB	-5.5 ± 3	-5.5 ± 2
12	LFE Signal across level		30Hz	0dB	22	V	2.5≤±0.8	25≤±0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Main Vol level	L/C/R/Ls/Rs/LFE ->Sub Out (2) (1): 0dB, Stereo: On, Sub: Yes	30Hz	0dB	22	dB	-11≤±2	-11≤±1
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	"50" Position	C/Ls/Rs/LFE -> L, R (3) (2): 0dB, Stereo: On, Sub: No	30Hz	0dB	22	dB	-6.5≤±3	-6.5≤±2
13	Dynamic Range	Main Vol Level : "50" Position	1KHz	0dB	38	dB	-22≤±2	22≤±1
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>
	Sub-woofer : Yes		30Hz	0dB	18	dB	±1	±0.5
	<b>MEASUREMENT</b>		L	C	R	LS	<b>RS</b>	<b>SW</b>

## ● FM SECTION

Measuring methods in conformity with IEC standard 315

Measurements condition FM : Radio frequency = 98.1MHz, Audio frequency = 1kHz

Reference level = 1mV on ( 75ohms , 300ohms )

Deviation : MONO =  $\pm 75\text{kHz}$ , Stereo =  $\pm 67.5\text{kHz} \pm 7.5\text{kHz}$  (A, K)

MONO =  $\pm 40\text{kHz}$ , Stereo =  $\pm 40\text{kHz} \pm 7.5\text{kHz}$  (D/RDS)

Test Point : TP 1 = 90.1MHz, TP 2 = 98.1MHz, TP 3 = 106.1MHz (A, K)

TP 1 = 90.0MHz, TP 2 = 98.0MHz, TP 3 = 106.0MHz (D/RDS)

Filter = B.P.F at STEREO

NO	DESCRIPTION	UNIT	LIMIT L/R	NOMINAL L/R	VERSION
1	TUNING RANGE STEP	MHz	87.5~107.9M		A, K
		kHz	200		"
	LOW ~ HIGH AUTO/Man.	MHz	87.5~108.0M		D/RDS
		kHz	100/50		"
2	USABLE SENSITIVITY  S/N = 30dB	TP 1	dBf	$\leq 17.2$	$\leq 14.2$
		TP 2	dBf	$\leq 17.2$	$\leq 14.2$
		TP 3	dBf	$\leq 17.2$	$\leq 14.2$
	USABLE SENSITIVITY  S/N = 26dB	TP 1	dBf	$\leq 17.2$	$\leq 14.2$
		TP 2	dBf	$\leq 17.2$	$\leq 14.2$
		TP 3	dBf	$\leq 17.2$	$\leq 14.2$
3	FULL LIMITING SENSE	OUTPUT = -3dB	dBf	$\leq 15.2$	$\leq 12.2$
4	AUTO STOP LEVEL		dBf	$31.2 \pm 5$	$31.2 \pm 3$
5	AUTO SCAN ERROR	kHz	$\pm 20$	$\pm 25$	A, K
		kHz	$\pm 15$	$\pm 20$	D/RDS
6	S/N RATIO IHF-A FILTER	MONO	dB	$\geq 65$	$\geq 70$
		STEREO	dB	$\geq 60$	$\geq 65$
7	TOTAL HARMONIC DISTORTION	MONO	%	$\leq 0.5$	$\leq 0.3$
		STEREO	%	$\leq 0.8$	$\leq 0.5$
8	50dB QUIETING SENS.	MONO	dBf	$\leq 23.2$	$\leq 20.2$
		STEREO	dBf	$\leq 48.3$	$\leq 45.3$
	46dB QUIETING SENS.	MONO	dBf	$\leq 23.2$	$\leq 20.2$
		STEREO	dBf	$\leq 48.3$	$\leq 45.3$
9	CHANNEL SEPARATION	100Hz	dB	$\geq 35$	$\geq 40$
		1kHz	dB	$\geq 40$	$\geq 45$
		10kHz	dB	$\geq 30$	$\geq 35$
		100Hz	dB	$\geq 32$	$\geq 37$
		1kHz	dB	$\geq 37$	$\geq 42$
		10kHz	dB	$\geq 27$	$\geq 32$
10	FREQUENCY RESPONSE AT $\pm 1.5\text{dB}$	Hz	20~12.5K		10~14K
11	SPURIOUS RESPONSE	dB	$\geq 70$	$\geq 80$	A, K
		dB	$\geq 80$	$\geq 90$	D/RDS
12	IF REJECTION	TP 1	dB	$\geq 70$	$\geq 80$
13	IMAGE REJECTION	TP 3	dB	$\geq 60$	$\geq 65$
		TP 3	dB	$\geq 70$	$\geq 80$
14	AM REJECTION RATIO		dB	$\geq 47$	$\geq 52$
15	RF INTERMODULATION		dB		
16	CAPTURE RATIO		dB	$\leq 2.5$	$\leq 2$
17	ALTERNATIVE CH SELECTIVITY	$\pm (400)\text{kHz}$	dB	$\geq 42$	$\geq 47$
19	OUPUT LEVEL MONO		mV	$500 \pm 150$	$500 \pm 100$
20	RDS SENSITIVITY		dBf	$\geq 40.2$	RDS ONLY

## ● AM SECTION

Measuring methods in conformity with IEC standard 315

Measurements condition AM - MW : Radio frequency = 1000/999kHz, Audio frequency = 400Hz

LW : Radio frequency = 207kHz, Audio frequency = 400Hz

Reference level = 5mV/m, 10mV/m on 50ohms

Modulation = 30%

Test Point : MW TP1 = (594)kHz TP2 = (999)kHz TP3 = (1404)kHz (K, D/RDS)

Test Point : MW TP1 = (600)kHz TP2 = (1000)kHz TP3 = (1400)kHz (A)

LW TP1 = (162)kHz TP2 = (207)kHz TP3 = (252)kHz

NO	DESCRIPTION	UNIT	LIMIT L/R	NOMINAL L/R	VERSION
1	TUNING COVER RANGE STEP	LOW ~ HIGH MW	kHz	522~1611	K, D/RDS
		LW	kHz		"
		AUTO/Man.	kHz	9	"
		LOW ~ HIGH MW	kHz	520~1710	A
		LW	kHz		"
		AUTO/Man.	kHz	10	"
2	USABLE SENSITIVITY S/N = 20dB	MW TP 1	uV/m	≤ 800	≤ 500
		TP 2	uV/m	≤ 800	≤ 500
		TP 3	uV/m	≤ 800	≤ 500
		LW TP 1	uV/m		
		TP 2	uV/m		
		TP 3	uV/m		
3	S/N RATIO	MW	dB	≥ 35	K, D/RDS
		LW	dB		
		MW	dB	≥ 40	≥ 45
		LW	dB		A
4	TOTAL HARMONIC DISTORTION	%	≤ 2	≤ 1.0	K D/RDS
		%	≤ 1.5	≤ 1.0	A
5	OVER LOAD DISTORTION 5mV 80% MOD	%	≤ 10	≤ 5	
6	FREQUENCY RESPONSE at -6dB	MW	Hz	100~2K	80~2.2K
		LW	Hz		
7	SELECTIVITY 10kHz/9kHz	MW	dB	≥ 20	≥ 25
		LW	dB		
8	AGC FIGURE OF MERIT	dB	≥ 50	≥ 55	
9	IMAGE REJECTION	MW = TP 3	dB	≥ 30	≥ 35
		LW = TP 3	dB		
10	WHISTLE MODULATION INPUT = 1mV/m	2IF	%	≤ 15	≤ 10
		3IF	%		
11	AUTO STOP LEVEL	MW	uV/m	800(± 6dB)	800(± 5dB)
		LW	uV/m		
12	TUNED LEVEL	MW	uV/m	800(± 6dB)	800(± 5dB)
		LW	uV/m		
13	OUTPUT LEVEL		mV	120±50	120±30
			mV	150±50	150±30
					D/RDS

## ● GENERAL

Power consumption ----- A : 2.3A, D : 550W K : 450W

Power supplies ----- A : AC 120V, 50Hz (A Version)

D : AC 220V, 50Hz (D/RDS Version)

K : AC 220V, 60Hz (K Version)

Dimensions (W×H×D) ----- 440×125×300mm

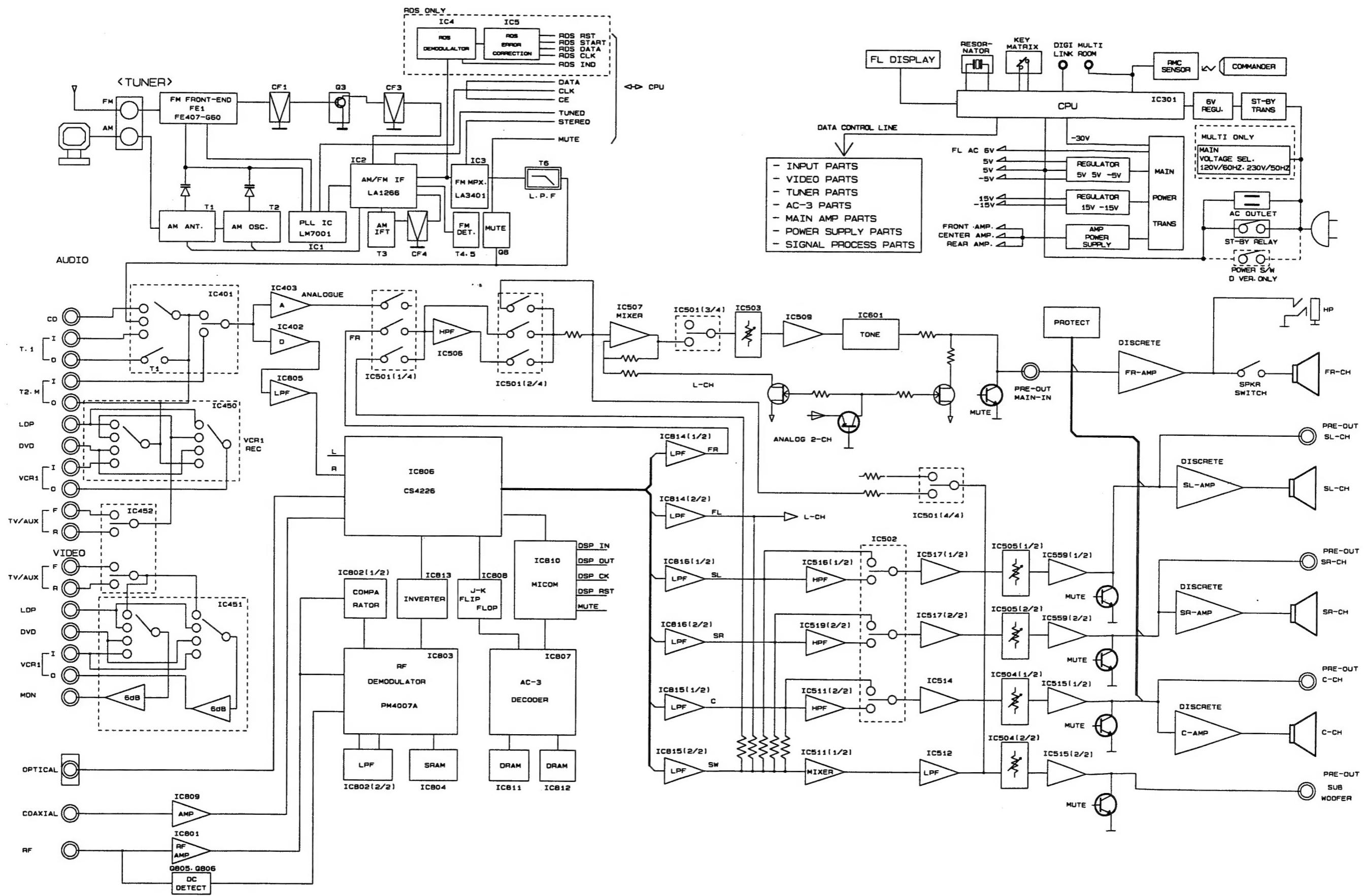
17-5/16×4-15/16×1 1/8inches

Weight (Net) ----- 10.5kg

## **NOTES**

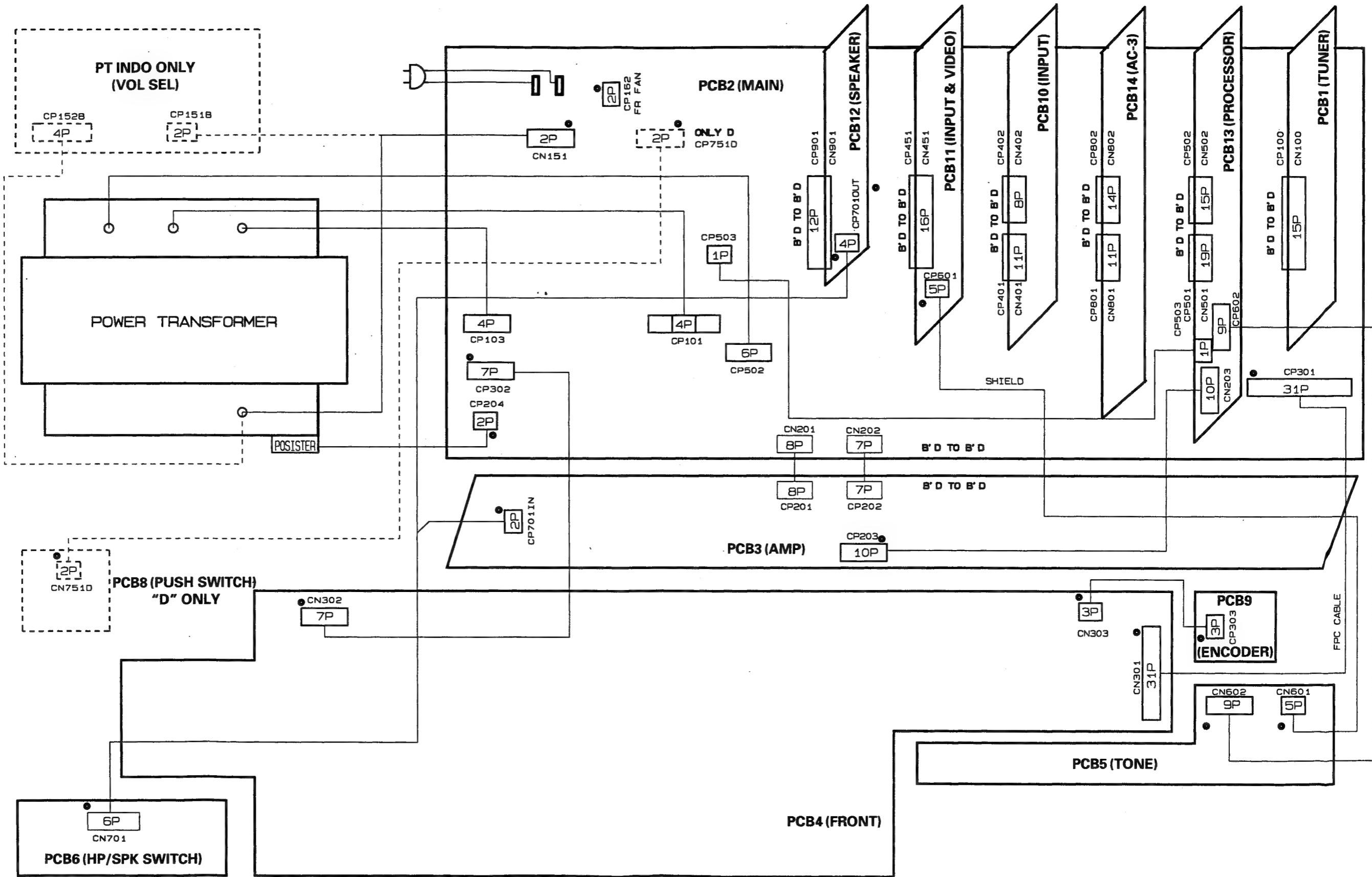
# BLOCK DIAGRAM

Model No. : R-925R/R-925RDS



## WIRING DIAGRAM

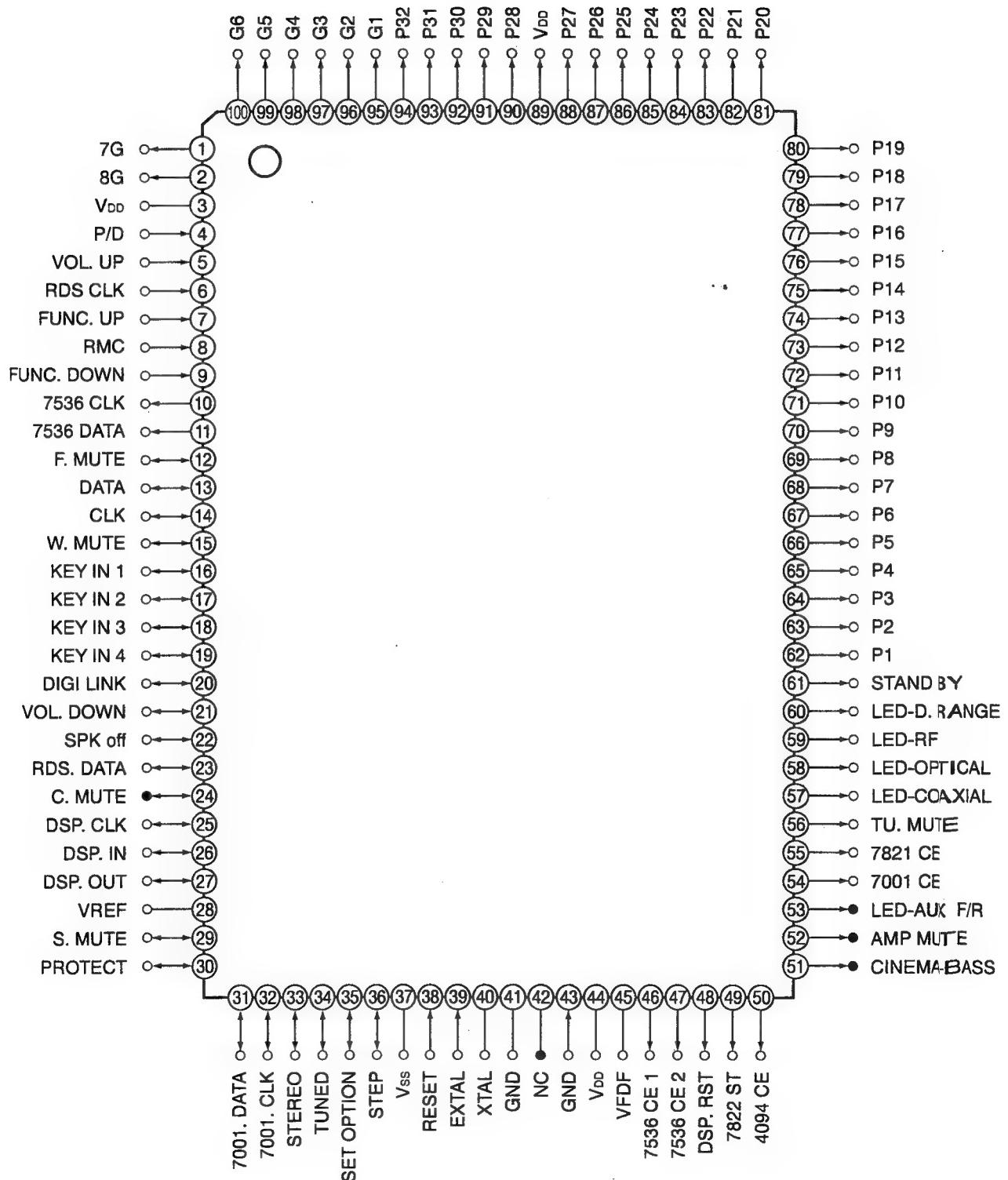
Model No. : R-925R/R-925RI



# CIRCUIT DESCRIPTION

**IC301 : CXP-82852-114Q, DWP427**

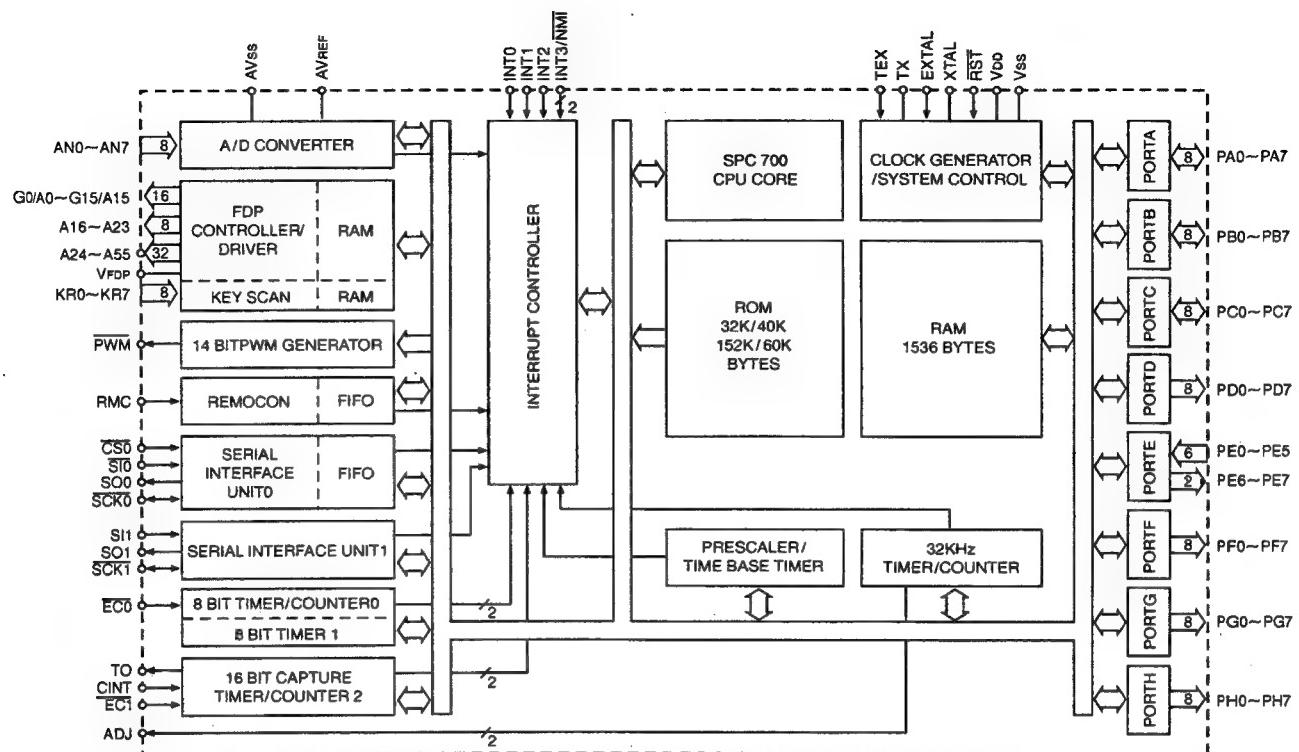
## 1. Pin Description



## 2. Main CPU Pin Functions

Pin No.	Symbol	Description
1~2	7G~8G	Grid signal output for FIP.
3	VDD	+5V power supply.
4	P/D	Input for power down.
5	VOL. UP	Input for main volume up.
6	RDS CLK	CLOCK signal output for TDA7330.
7	FUNC. UP	Input for main function up.
8	RMC	Input for remote control data.
9	FUNC. DOWN	Input for main function down.
10	7536CLK	CLOCK signal output for LC7536
11	7536DATA	DATA signal output for LC7536
12	F. MUTE	Output for front channel mute.(At "H", it is active.)
13	DATA	DATA signal output for LC7821 and LC7822.
14	CLK	CLOCK signal output for LC7821 and LC7822.
15	W. MUTE	Output for subwoofer mute.(At "H", it is active.)
16~19	KEY IN1~4.	Data input for key scan.
20	DIGI LINK	Input/Output for controlling digi-link III
21	VOL. DOWN	Input for main volume down.
22	SPK OFF	Input for detecting "SPEAKER SWITCH IS OFF" condition.
23	RDS. DATA	Input for RDS data of TDA7330.
24	C. MUTE	Output for center channel mute.(At "H", it is active.)
25	DSP. CLK	CLOCK signal input from IC810(uPD78044, pin 9).
26	DSP. IN	DATA signal input from IC810(uPD78044, pin 11).
27	DSP. OUT	DATA signal output to IC810(uPD78044, pin 10).
28	VREF	Reference voltage.(Connected to +5V, Not VDD.)
29	S. MUTE	Output for surround channel mute.(At "H", it is active.)
30	PROTECT	Input for detecting "PROTECTION" condition.
31	7001. DATA	DATA signal output for LM7001.
32	7001. CLK	CLOCK signal output for LM7001.
33	STEREO	Input for detecting "STEREO" condition.
34	TUNED	Input for detecting "TUNED" condition.(At "L", it is active.)
35	SET OPTION	Input for selecting set.(5V:RDS Receiver, 0V:Receiver.)
36	STEP	Input for selecting the frequency ranges steps of FM and AM.
37	VSS	This pin provides the ground potential.
38	RESET	Input for resetting the CPU.(At "L", it is active.)
39	EXTAL	Input for 10MHz crystal oscillator.
40	XTAL	Output for 10MHz crystal oscillator.
41	G	Ground.
42		Not used!
43	G	Ground.
44	VDD	+5V power supply.
45	VFDF	-30V power supply for FIP.
46	7536CE1	Chip enable signal output to LC7536.(Front channel electric volume)
47	7536CE2	Chip enable signal output to LC7536.(Center, rear and woofer CH. electric vol.)
48	DSP. RST	RESET signal output to IC810(uPD78044, pin 17).
49	7822ST	Chip enable signal output to LC7822.
50	4094CE	LC7536 CHIP ENABLE( FRONT VR ).
51	CINEMA-BASS	Output signal for Cinema-Bass function. (High Active)
52	AMP MUTE	Output for main mute.(At "H", it is active.)
53	LED-AUX F/R	Output to drive AUX FRONT/REAR LED.(At "H"-Front, "L"-Rear.)
54	7001CE	Chip enable signal output to LM7001.
55	7821CE	
56	TU. MUTE	Output for tuner mute.(At "H", it is active.)
57	LED-COAXIAL	Output to drive COAXIAL LED.(At "H", it is active.)
58	LED-OPTICAL	Output to drive OPTICAL LED.(At "H", it is active.)
59	LED-RF	Output to drive RF LED.(At "H", it is active.)
60	LED-D.RANGE	Output to drive Dynamic Range LED.(At "H", it is active.)
61	STAND BY	Output to drive Power relay & Stand-by LED.(At "H", it is active.)
62~70	P1~P9	Segment signal output for FIP.
71~80	P10~P19	Segment signal output for FIP and data output for key scan.
81~88	P20~P27	Segment signal output for FIP.
89	VDD	+5V power supply.
90~94	P28~P32	Segment signal output for FIP.
95~100	1G~6G	Grid signal output for FIP.

### 3. Block Diagram



### 4. Key Matrix

	KEY CHECK										
	KEY SCAN 0	KEY SCAN 1	KEY SCAN 2	KEY SCAN 3	KEY SCAN 4	KEY SCAN 5	KEY SCAN 6	KEY SCAN 7	KEY SCAN 8	KEY SCAN 9	
	PIN 71	PIN 72	PIN 73	PIN 74	PIN 75	PIN 76	PIN 77	PIN 78	PIN 79	PIN 80	
KEY IN1	SLEEP/	SEARCH	DSP	4	7	MEMORY	WOOFER	BAND	CENTER	DYNAMIC	
PIN 16	ST-BY					ENTER	UP		LEVEL DW	RANGE	
KEY IN2	AC-3	EON	PRO-	3	8	WOOFER	FM	PTY	CENTER	VCR1	
PIN 17		TA	LOGIC			DOWN	MODE	SELECT	LEVEL UP	REC	
KEY IN3	1	EON	TUNE	2	9	0	REAR	TURN		TAPE2	
PIN 18		PTY	DOWN				LEVEL DW	UP		MONITOR	
KEY IN4	POWER	DISPLAY	OFF	5	6	FREQUENCY	REAR	CINEMA	SPKR	VIDEO	
PIN 19	(ST-BY)						LEVEL UP	BASE	MODE	LABELS	

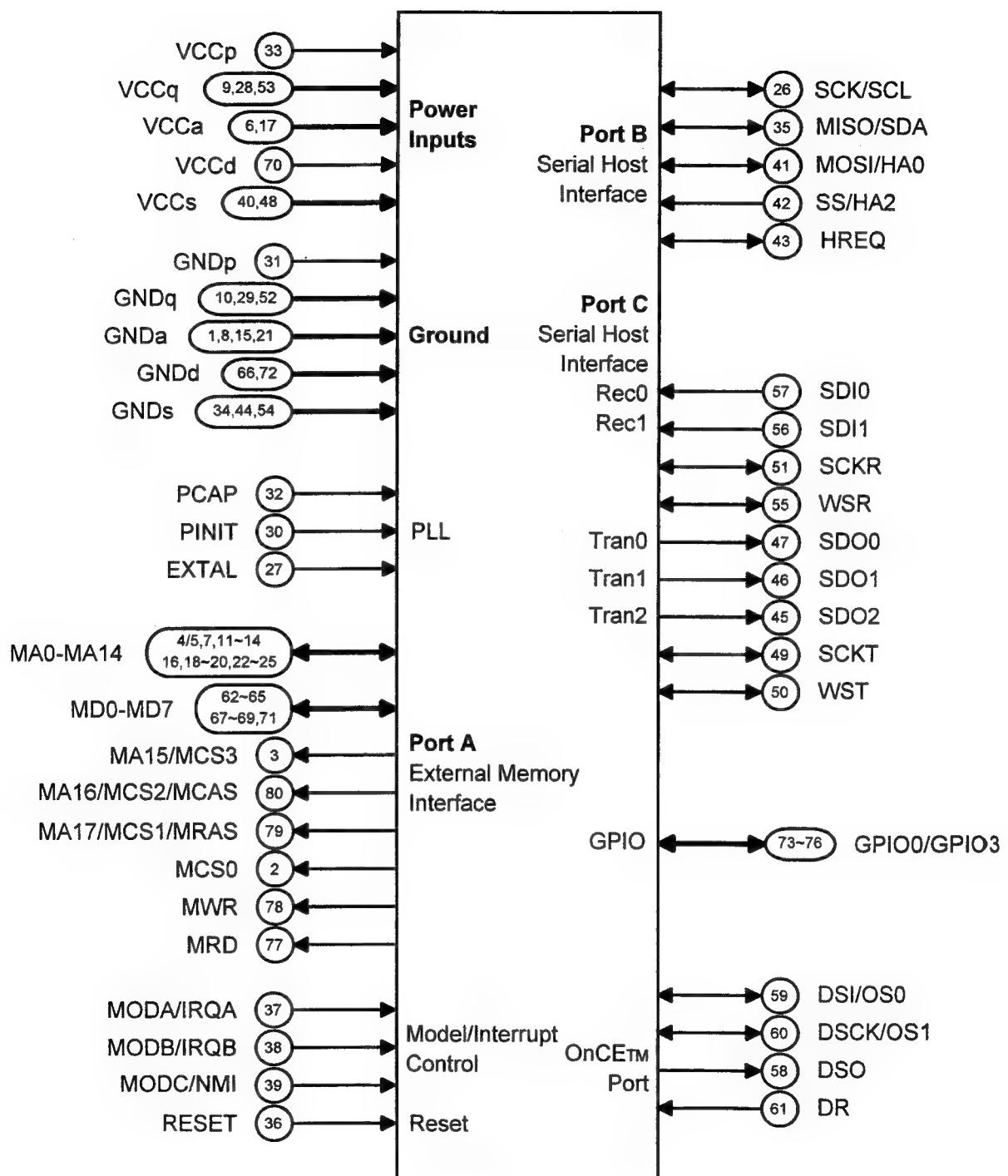
## IC810 : uPD78044

### 2-1.Sub CPU Pin Functions

Pin No.	Symbol	Description
1~7		Not used!
8	VDD	+5V power supply.
9	SCK0	CLOCK signal output to IC301(CXP82852, pin 25).
10	SB1	DATA signal input from IC301(CXP82852, pin 27)
11	SB0	DATA signal output to IC301(CXP82852, pin 26)
12~13		Not used!
14	SCK1	CLOCK signal output to IC807(MC56009) and IC806(CS4226).
15	SO1	DATA signal output to IC807(MC56009) and IC806(CS4226).
16	SI1	DATA signal input from IC807(MC56009) and IC806(CS4226).
17	RESET	RESET signal input from IC301(CXP82852, pin 50)
18	P74	Ground.
19	P73	Ground.
20	AVSS	Ground.
21	AN17	RESET signal output to IC806(CS4226).
22	AN16	Not used!
23	AN15	STROBE signal output to IC806(CS4226).
24	AN14	Not used!
25	AN13	Output for all channel mute.(At "L", it is active.)
26~27		Not used!
28	AN10	Sampling rate control port.(At "H", it is 48 kHz mode. At "L", it is 44.1 kHz mode.)
29	AVDD	+5V power supply.
30	AVREF	+5V power supply.
31	XT1	Ground.
32	XT2	Not used!
33	VSS	This pin provides the ground potential.
34	X1	Input for 4.19MHz crystal oscillator.
35	X2	Output for 4.19MHz crystal oscillator.
36	P37	Output for DSP mode.(At "H", it is active.)
37	BUZ	General purpose I/O pin. This pin is connected pin 39 and pin 40
38	PCL	IC803(PM4007) OSC control port.(At "H", it is OSC-OFF. At "L", it is OSC-ON.)
39	TI2	This pin is connected pin 37 and pin 40
40	TI1	This pin is connected pin 37 and pin 39
41	TO2	Chip enable signal output to IC807(MC56009).
42	TO1	RESET signal output to IC807(MC56009).
43	TO0	Host request port from IC807(MC56009).
44	CI0	Test tone retry.(At "L", it is active.)
45	INTP2	Input for detecting "OPTICAL INPUT".(At "L", it is active.)
46	INP1	Input for detecting "COAXIAL INPUT".(At "L", it is active.)
47	TI0	Input for detecting "AC-3 DATA" and "PCM DATA".(At "L", it is active.)
48	IC	Ground.
49~51		Not used!
52	VDD	+5V power supply.
53~70		Not used!
71	VLOAD	Ground.
72~80		Not used!

# IC807 : DSP56009 ⇒ SIGNAL/CONNECTION DESCRIPTIONS

## 3-1.Pin Discription



### 3-2. Pin Function

#### ☞ SIGNAL GROUPINGS

**Table 1-1 Functional Group Signal Allocations**

Functional Group	Number of Signals	Detailed Description
Power (VCC)	9	Table 1-2
Ground (GND)	13	Table 1-3
Phase Lock Loop (PLL)	3	Table 1-4
External Memory Interface (EMI)	29	Table 1-5 and Table 1-6
Interrupt and Mode Control	4	Table 1-7
Serial Host Interface (SHI)	5	Table 1-8
Serial Audio Interface (SAI)	9	Table 1-9 and Table 1-10
General Purpose Input/Output (GPIO)	4	Table 1-11
On-Chip Emulation (OnCE) port	4	Table 1-12
Total	80	

#### ☞ POWER

**Table 1-2 Power Inputs**

Power Name	Description
Vccp	<b>PLL Power</b> - Vccp provides isolated power for the Phase Lock Loop (PLL).
Vccq	<b>Quiet Power</b> - Vccq provides isolated power for the internal processing logic.
Vcca	<b>Address Bus Power</b> - Vcca provides isolated power for sections of the address bus I/O drivers.
Vccd	<b>Data Bus Power</b> - Vccd provides isolated power for sections of the data bus I/O drivers.
Vccs	<b>Serial Interface Power</b> - Vccs provides isolated power for the SHI and SAI.

#### ☞ GROUND

**Table 1-3 Grounds**

Ground Name	Description
GNDp	<b>PLL Ground</b> - GNDp is ground dedicated for PLL use.
GNDq	<b>Quiet Ground</b> - GNDq provides isolated ground for the internal processing logic.
GNDa	<b>Address Bus Ground</b> - GNDa provides isolated ground for sections of the address bus I/O drivers.
GNDd	<b>Data Bus Ground</b> - GNDd provides isolated ground for sections of the data bus I/O drivers.
GNDs	<b>Serial Interface Ground</b> - GNDs provides isolated ground for the SHI and SAI.

## CLOCK AND PLL SIGNALS

**Table 1-4 Clock and PLL Signals**

Signal Name	Signal Type	State during Reset	Signal Description
EXTAL	Input	Input	<b>External Clock/Crystal</b> - This input should be connected to an external clock source.
PCAP	Input	Input	<b>PLL Filter Capacitor</b> - This input is used to connect a high-quality (high "Q" factor) external capacitor needed for the PLL filter.
PINIT	Input	Input	<b>PLL Initialization (PINIT)</b> - During the assertion of hardware reset, the value on the PINIT line is written into the PEN bit of the PCTL register.

## EXTERNAL MEMORY INTERFACE (EMI)

**Table 1-5 External Memory Interface (EMI) Signals**

Signal Name	Signal Type	State during Reset	Signal Description
MA0 - MA14	Output	Table 1-6	<b>Memory Address Lines 0-14</b> - The MA0-MA10 lines provide the multiplexed row/column addresses for DRAM accesses.
MA15	Output	Table 1-6	<b>Memory Address Line 15 (MA15)</b> - This line functions as the non-multiplexed address line 15.
MCS3			<b>Memory Chip Select 3 (MCS3)</b> - For SRAM accesses, this line functions as memory chip select 3.
MA16	Output	Table 1-6	<b>Memory Address Line 16 (MA16)</b> - This line functions as the non-multiplexed address line 16 or as memory chip select 2 for SRAM accesses.
MCS2			<b>Memory Chip Select 2 (MCS2)</b> - For SRAM access, this line functions as memory chip select 2.
MCAS			<b>Memory Column Address Strobe (MCAS)</b> - This line functions as the Memory Column Address Strobe (MCAS) during DRAM accesses.
MA17	Output	Table 1-6	<b>Memory Address Line 17 (MA17)</b> - This line functions as the non-multiplexed address line 17.
MCS1			<b>Memory Chip Select 1 (MCS1)</b> - This line functions as chip select 1 for SRAM accesses.
MRAS			<b>Memory Row Address Strobe (MRAS)</b> - This line also functions as the Memory Row Address Strobe during DRAM accesses.
MCS0	Output	Table 1-6	<b>Memory Chip Select 0</b> - This line functions as memory chip select 0 for SRAM accesses.
MWR	Output	Table 1-6	<b>Memory Write Strobe</b> - This line is asserted when writing to external memory.
MRD	Output	Table 1-6	<b>Memory Read Strobe</b> - This line is asserted when reading external memory.
MD0 - MD7	Bidi-directional	Tri-stated	<b>Data Bus</b> - These signals provide the bidirectional data bus for EMI accesses.

**Table 1-6 EMI States during Reset and Stop States**

Signal	Operating Mode			
	Hardware Reset	Software Reset	Individual Reset	Stop Mode
MA0 - MA14	Driven High	Previous State	Previous State	Previous State
MA15	Driven High	Driven High	Previous State	Previous State
MCS3	Driven High	Driven High	Driven High	Driven High
MA16	Driven High	Driven High	Previous State	Previous State
MCS2	Driven High	Driven High	Driven High	Driven High
MCAS:				
DRAM refresh disabled	Driven High	Driven High	Driven High	Driven High
DRAM refresh enabled	Driven High	Driven High	Driven High	Driven High
MA17	Driven High	Driven High	Previous State	Previous State
MCS1	Driven High	Driven High	Driven High	Driven High
MRAS:				
DRAM refresh disabled	Driven High	Driven High	Driven High	Driven High
DRAM refresh enabled	Driven High	Driven High	Driven High	Driven High
MCS0	Driven High	Driven High	Driven High	Driven High
MWR	Driven High	Driven High	Driven High	Driven High
MRD	Driven High	Driven High	Driven High	Driven High

## INTERRUPT AND MODE CONTROL

**Table 1-7 Interrupt and Mode Control Signals**

Signal Name	Signal Type	State during Reset	Signal Description
MODA	Input	Input (MODA)	<b>Mode Select A</b> - This input signal has three functions: <ul style="list-style-type: none"> <li>to work with the MODB and MODC signals to select the DSP's initial operating mode,</li> <li>to allow an external device to request a DSP interrupt after internal synchronization, and</li> <li>to turn on the internal clock generator when the DSP is in the Stop processing state, causing the DSP to resume processing.</li> </ul> MODA is read and internally latched in the DSP when the processor exits the Reset state.
IRQA			<b>External Interrupt Request A (IRQA)</b> - The IRQA input is a synchronized external interrupt request.
MODB	Input	Input (MODB)	<b>Mode Select B</b> - This input signal has two functions: <ul style="list-style-type: none"> <li>to work with the MODA and MODC signals to select the DSP's initial operating mode, and</li> <li>to allow an external device to request a DSP interrupt after internal synchronization.</li> </ul> MODB is read and internally latched in the DSP when the processor exits the Reset state.
IRQB			<b>External Interrupt Request B (IRQB)</b> - The IRQB input is a synchronized external interrupt request.

**Table 1-7 Interrupt and Mode Control Signals**

Signal Name	Signal Type	State during Reset	Signal Description
MODC	Input, edge-triggered	Input (MODC)	<b>Mode Select C</b> - This input signal has two functions: <ul style="list-style-type: none"> <li>to work with the MODA and MODB signals to select the DSP's initial operating mode, and</li> <li>to allow an external device to request a DSP interrupt after internal synchronization.</li> </ul> MODC is read and internally latched in the DSP when the processor exits the Reset state.
NMI			<b>Non-Maskable Interrupt Request</b> - The NMI input is a negative-edge-triggered external interrupt request.
RESET	input	active	<b>RESET</b> - This input causes a direct hardware reset of the processor.

☞ **SERIAL HOST INTERFACE (SHI)**

**Table 1-8 Serial Host Interface (SHI) signals**

Signal Name	Signal Type	State during Reset	Signal Description
SCK	Input or Output	Tri-stated	<b>SPI Serial Clock (SCK)</b> - The SCK signal is an output when the SPI is configured as a master, and a Schmitt-trigger input when the SPI is configured as a slave.
SCL	Input or Output		<b>I<sup>2</sup> C Serial Clock (SCL)</b> - SCL carries the clock for bus transactions in the I <sup>2</sup> C mode.
MISO	Input or Output	Tri-stated	<b>SPI Master-In-Slave-Out (MISO)</b> - When the SPI is configured as a master, MISO is the master data input line.
SDA	Input or Output		<b>I<sup>2</sup> C Serial Data and Acknowledge (SDA)</b> - In I <sup>2</sup> C mode, SDA is a Schmitt-trigger input when receiving and an open-drain output when transmitting.
MOSI	Input or Output	Tri-stated	<b>SPI Master-Out-Slave-In (MOSI)</b> - Then the SPI is configured as a master, MOSI is the master data output line.
HA0	Input		<b>I<sup>2</sup> C Slave Address 0 (HA0)</b> - This signal uses a Schmitt-trigger input when configured for the I <sup>2</sup> C mode.
SS	Input	Tri-stated	<b>SPI Slave Select (SS)</b> - This signal is an active low Schmitt-trigger input when configured for the SPI mode.
HA2	Input		<b>I<sup>2</sup> C Slave Address 2 (HA2)</b> - This signal uses a Schmitt-trigger input when configured for the I <sup>2</sup> C mode.
HREQ	Input or Output	Tri-stated	<b>Host Request</b> - This signal is an active low Schmitt-trigger input when configured for the Master mode, but an active low output when configured for the Slave mode.

## SERIAL AUDIO INTERFACE (SAI)

### ① SAI Receiver Section

**Table 1-9 Serial Audio Interface (SAI) Receiver signals**

Signal Name	Signal Type	State during Reset	Signal Description
SDI0	Input	Tri-stated	<b>Serial Data Input 0</b> - While in the high impedance state, the internal input buffer is disconnected from the pin and no external pull-up is necessary.
SDI1	Input	Tri-stated	<b>Serial Data Input 1</b> - While in the high impedance state, the internal input buffer is disconnected from the pin and no external pull-up is necessary.
SCKR	Input or Output	Tri-stated	<b>Receive Serial Clock</b> - SCKR is an output if the receiver section is programmed as a master, and a Schmitt-trigger input if programmed as a slave.
WSR	Input or Output	Tri-stated	<b>Word Select Receive (WSR)</b> - WSR is an output if the receiver section is configured as a master, and a Schmitt-trigger input if configured as a slave.

### ② SAI Transmitter Section

**Table 1-10 Serial Audio Interface (SAI) Transmitter signals**

Signal Name	Signal Type	State during Reset	Signal Description
SDO0	Output	Driven High	<b>Serial Data Output 0 (SDO0)</b> - SDO0 is the serial output for transmitter 0.
SDO1	Output	Driven High	<b>Serial Data Output 1 (SDO1)</b> - SDO1 is the serial output for transmitter 1.
SDO2	Output	Driven High	<b>Serial Data Output 2 (SDO2)</b> - SDO2 is the serial output for transmitter 2.
SCKT	Input or Output	Tri-stated	<b>Serial Clock Transmit (SCKT)</b> - This signal provides the clock for the SAI.
WST	Input or Output	Tri-stated	<b>Word Select Transmit (WST)</b> - WST is an output if the transmit section is programmed as a master, and a Schmitt-trigger input if it is programmed as a slave.

☞ GENERAL PURPOSE I/O

**Table 1-11 General Purpose I/O (GPIO) Signals**

Signal Name	Signal Type	State during Reset	Signal Description
GPIO0-GPIO3	Standard Output, Open-drain Output, or Input	Disconnected	GPIO lines can be used for control and handshake functions between the DSP and external circuitry.

☞ ON-CHIP EMULATION (OnCE™) PORT

**Table 1-12 On-Chip Emulation Port Signals**

Signal Name	Signal Type	State during Reset	Signal Description
DSI	Input	Output, Driven Low	<b>Debug Serial Input (DSI)</b> - The DSI signal is the signal through which serial data or commands are provided to the OnCE port controller.
OS0	Output		<b>Operating Status 0 (OS0)</b> - When the DSP is not in the Debug mode, the OS0 signal provides information about the DSP status if it is an output and used in conjunction with the OS1 signal.
DSCK	Input	Output, Driven Low	<b>Debug Serial Clock (DSCK)</b> - The DSCK/OS1 signal, when an input, is the signal through which the serial clock is supplied to the OnCE port.
OS1	Output		<b>Operating Status 1 (OS1)</b> - If the OS1 signal is an output and used in conjunction with the OS0 signal, it provides information about the DSP status when the DSP is not in the Debug mode.
DSO	Output	Driven High	<b>Debug Serial Output (DSO)</b> - The DSO line provides the data contained in one of the OnCE port controller registers as specified by the last command received from the command controller.
DR	Input	Input	<b>Debug Request (DR)</b> - The debug request input provides a means of entering the Debug mode of operation.

## **NOTES**

# ALIGNMENT PROCEDURES

## TUNER

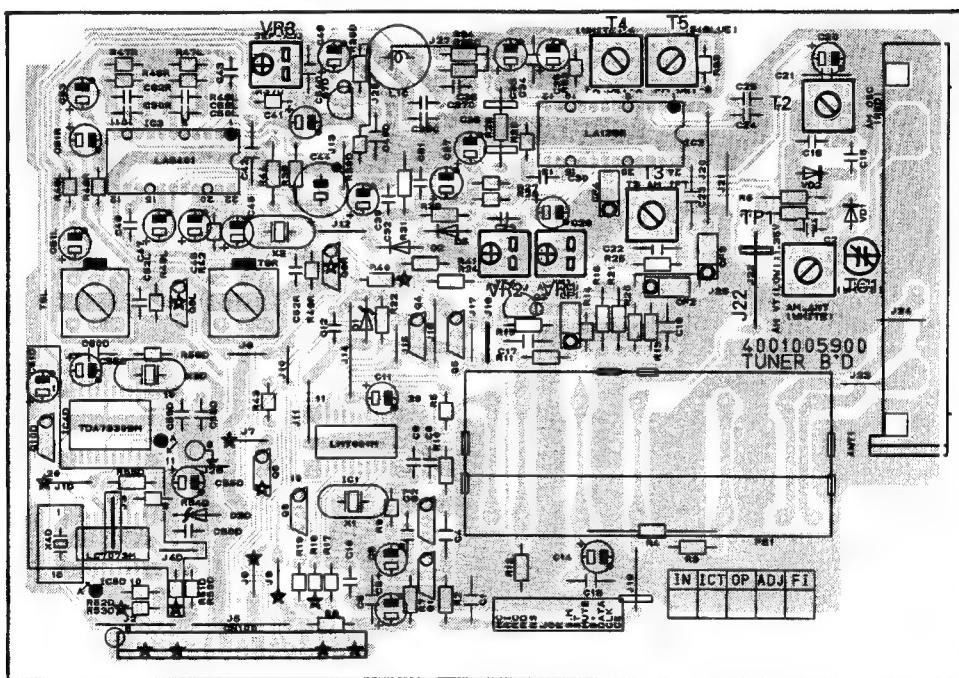
### 1. Equipment Required

- AM Standard Signal Generator (AM SSG)
- Oscilloscope
- AC Voltmeter
- FM Standard Signal Generator (FM SSG)
- Stereo Modulator
- Audio Generator
- Distortion Meter
- DC Voltmeter
- Frequency Counter

**Note :** Disconnect external FM antenna prior to alignment.

### 2. Alignment

#### 2-1. Alignment and Test Point



#### 2-2. AM Alignment

- Output of signal generator should not be greater than necessary to obtain an optimum output reading.
- Signal generator modulation : 30 %
- RF signal frequency : 400 Hz
- Switch : Press the BAND button to AM

Step	Subject	Signal Generator Frequency	Set Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	Tuning Voltage	520kHz (522kHz)	520kHz 1) (522kHz)	DC Voltmeter to J22 (TP1)	T2 AM OSC(R)	DC $1.5V \pm 0.2V$
2	USABLE sensitivity	600kHz (594kHz)	600kHz 1) (594kHz)	AC voltmeter and oscilloscope to speaker terminal of L or R channel	T 1 MW ANT(W)	Maximize audio output
		1400kHz (1404kHz)	1400kHz 2) (1404kHz)		TC1	

\* Feed signal should be fed to loop antenna through the test loop antenna 60 cm distant from the appliance.  
\* Repeat the step 1) and 2) until no further improvement occurs.

3	IF	1000kHz (999kHz)	1000kHz (999kHz)	Ac voltmeter and oscilloscope to speaker terminal of L or R channel	T3 AM IFT	Maximize audio output
4	Tuned Level	1000kHz(999kHz) 800 $\mu$ W/m	1000kHz (999kHz)		VR1	"Tuned" flag in the FL display light on

### 3-3. FM Alignment

- Output of signal generator should not be greater than necessary to obtain an optimum output reading.
- Signal generator deviation : USA/Canada/Korea : 75kHz, Europe : 40kHz
- RF signal frequency : 1 kHz
- Switch : Press the BAND button to FM and the FM MODE button to MONO

Step	Subject	Signal Generator Frequency	Set Frequency Setting	Equipment Connection	Adjustment Point	Adjust for
1	Tuning Band Width	98.1MHz (98MHz)	98.1MHz (98MHz)	DC Voltmeter to R26(PCB1)	T4	Zero reading on DC Voltmeter
2	THD	98.1MHz (98MHz)	98.1MHz (98MHz)	Distortion meter to TAPE OUT jack of L or R channel	T5	Minimize distortion
3	Tuned Level	98.1MHz(98MHz) SSG output level: 10 $\mu$ W/m	98.1MHz (98MHz)		VR2	"Tuned" flag in the FL display light on

### 3-4. MPX Alignment

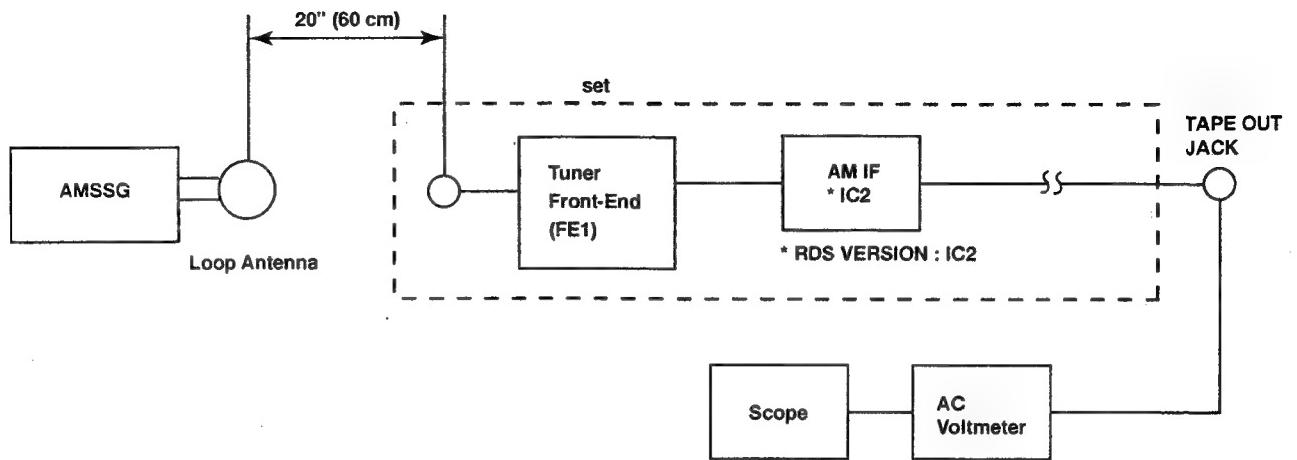
- Signal generator frequency : 98 MHz
- Signal generator deviation : USA : 75kHz, Europe : 40kHz
- RF signal frequency : 1 kHz
- Signal generator output level : 1000  $\mu$ W/m
- Connect signal generator to FM antenna terminal through FM dummy antenna (75Ω)
- Switch : Press the BAND button to FM and the FM MODE button to STEREO

Step	Subject	19kHz Modulation Level	Set Generator Setting	Equipment Connection	Adjustment Point	Adjust for
1	Separation R → L	8% Modulation	Pilot on	AC voltmeter to speaker terminal of R channel	VR3	Set AC voltmeter to 0 dB
				AC voltmeter to speaker terminal of L channel		AC voltmeter reading should be at least 40 dB below
2	Separation L → R	8% Modulation	Pilot on	AC voltmeter to speaker terminal of L channel	VR3	Set AC voltmeter to 0 dB
				AC voltmeter to speaker terminal of R channel		AC voltmeter reading should be at least 40 dB below

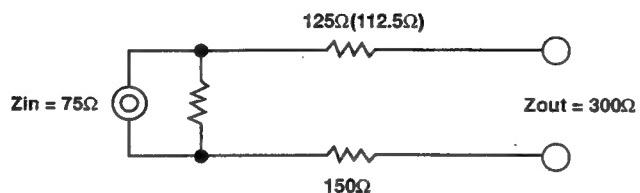
If you could not obtain -40 dB readings in steps 1 and 2, readjust VR3 until you obtain -40 dB readings.  
Nominal is -45 dB. (Europe : Nominal -42 dB, Limit -37 dB)

## 4. Equipment Connection

### 4-1. AM Alignment Connection

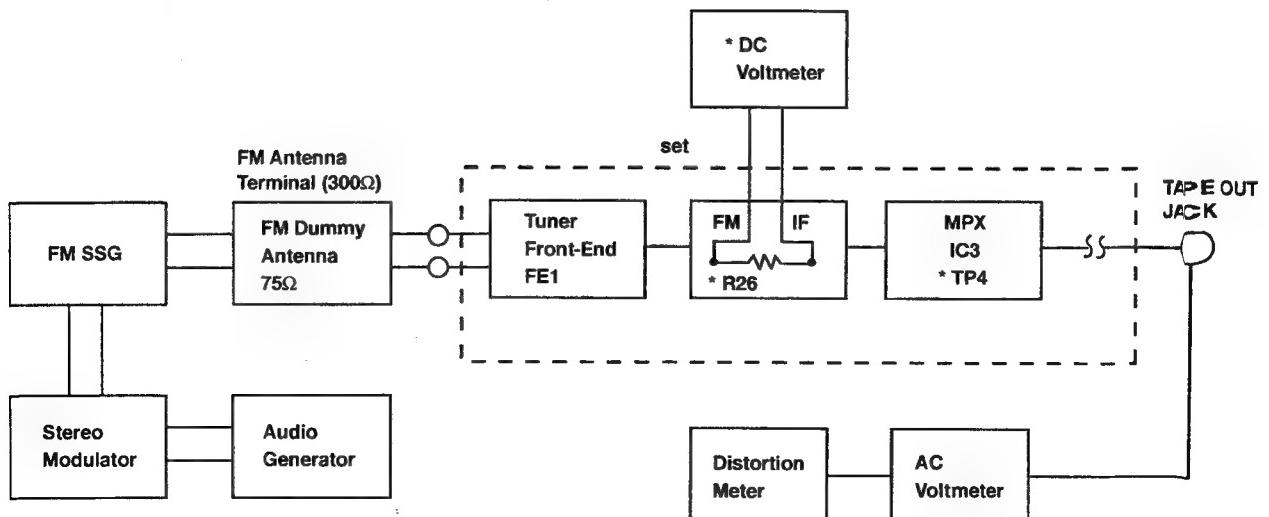


### 4-2. FM Dummy Antenna



FM Dummy Antenna to 300Ω Antenna terminal of system.

### 4-3. FM RF/IF and MPX Alignment Connection



## TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative. (FL indicator does not light.)	A) Faulty AC power cord. Replace. B) Defective the power switch. Replace. C) Broken wire in the power transformer. Replace. D) Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short on the primary or secondary of the transformer circuitry. Repair the short. C) Damaged rectifier D105-D112 or damaged transistor Q215L/R/C/SL, Q216L/R/C/SL. D) Short circuit in the amplifier circuit. Repair the shorted component(s) in the amplifier circuit.
Power indicator lights but no sound from both channels.	A) Defective in transistor Q215L/R, Q216L/R on the AMP302 Board. B) Pulled out of correct speaker switch.
One channel does not work when volume is at maximum with a test signal applied to the center terminal of volume control of the dead channels.	A) Defective in transistor Q215L/R or Q216L/R on the AMP302 Board. Replace the defect. B) Break in copper foil of printed circuit board. Repair the defect. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative.	A) Headphone plug does not match with jack. Replace the jack. B) Defective resistor R701L/R. Replace.
FM inoperative	A) Defective front-end (FE). Replace. B) Defective FM switch. Replace the switch. C) Defective transistor Q3 and ICS (IC2,IC3). Replace the defective transistor or IC(s). D) Defective coil T4, T5. Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filters CF1, CF3 defective. Replace the defective ceramic filter(s).
Poor multiplex separation.	A) Improper adjustment. Readjust VR3. B) IC3 defective. Replace. C) Variable resistor VR3 defective. Replace the variable resistor.
FM volume is insufficient.	A) If volume from both L and R channels is not loud enough : Front end section defective. Faulty IC2, Coil T4 or T5. If sound of one channel is not loud enough : Defective VR3.

Symptom	Cause and Remedy
STEREO indicator does not light.	A) Defective indicator in FL. Replace. B) Improper adjustment of VR2 of tuner board. Make readjustment. C) Defective IC2. Replace the defective component.
FM Mono has no effect.	A) Defective FM MODE switch. Replace.
AM inoperative.	A) Damaged IC2 of tuner Board. Replace. B) Defective T1, T2, T3 or CF4 of Tuner Board. Replace the defective component(s). D) Defective varicap diodes VD1 or VD2. Replace varicap diods(s). E) Damaged AM loop antenna. Repair or replace.
Bass control has no effect.	A) Variable resistor BASS defective. Replace.
Treble control has no effect.	A) Variable resistor TREBLE defective.
Auto tune inoperative. (UP/DOWN)	A) Poor contact in Up/Down key. Repair or replace. B) Defective IC301. Replace. C) Defective tuner Circuit components. Replace. D) In case of FM only, improper adjustment of FM front-end. Readjust.
Manual tune inoperative. (UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. B) Defective IC301. Replace.
Memory setting inoperative.	A) Poor contact in memory keys 1-10. Replace the defective component. B) Defective IC301. Replace the defective component.
FL inoperative.	A) FL defective. Replace. B) Defective IC301. Replace. C) Defective X-TAL 301. Replace.
Noisy volume control.	A) Defective volume. Replace.
Remote Control Unit inoperative.	A) Weak battery. Replace. B) Defective. Replace. C) Defective IC301 (FRONT Board) Replace.

# MECHANICAL PARTS LIST

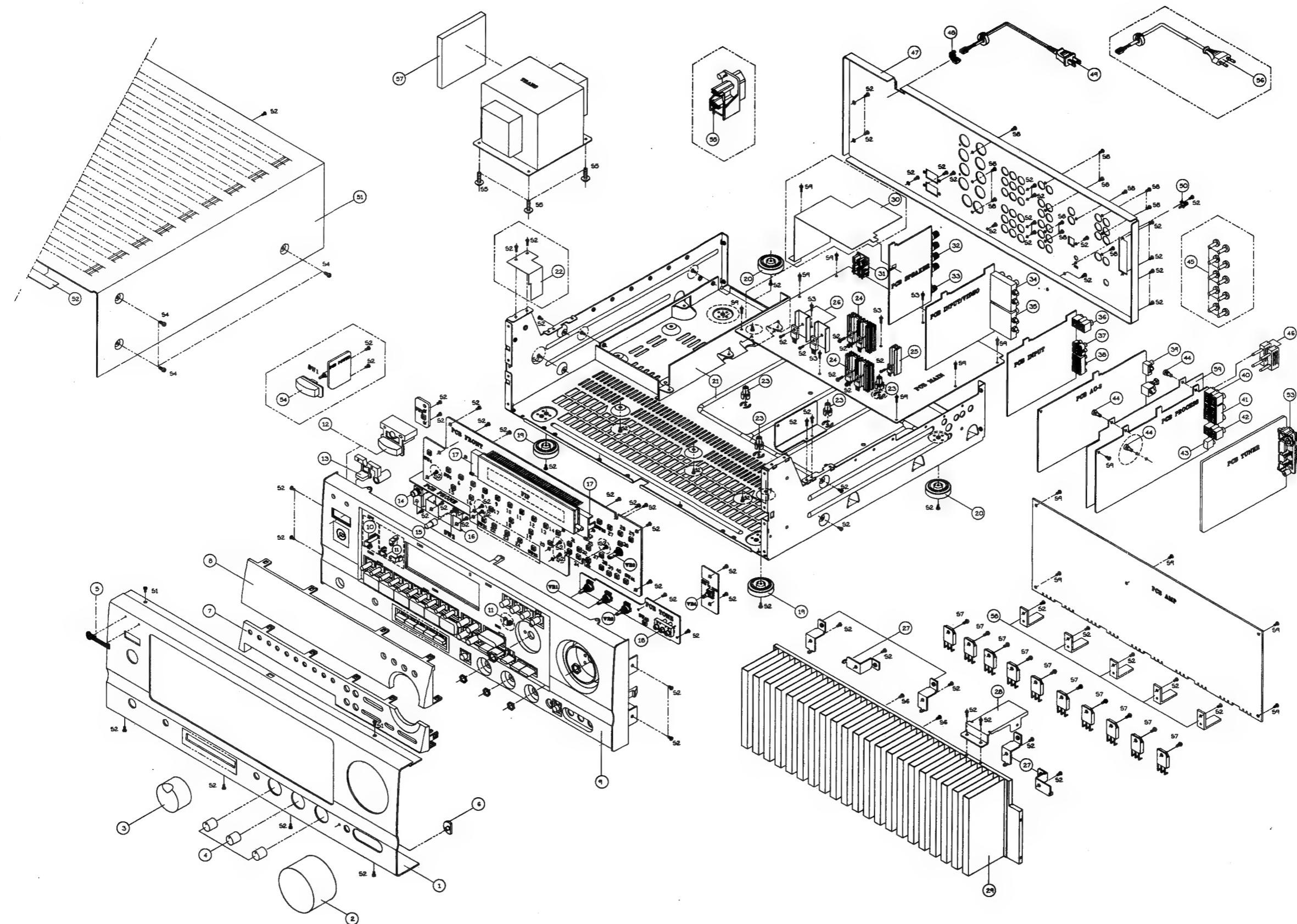
\*Parts without Parts No are not supplied.

\*Parts with blank vention are available in common.

Ref.No	Description	Part No.	Q'ty	Verton	Ref.No.	Description	Part No.	Q'ty	Verton					
<b>Packaging Materrials</b>														
	Box Carton	6017040990191	1	K	36	Jack RCA(2P)	G601200440020	1						
	Box Carton	6017040990190	1	A,D,RDS	37	Jack RCA(4P)	G60240045003A	1						
	Cushion Poly	6230042794010	1		38	Jack RCA(6P)	G603600920030	1						
	Film Soft PE	6320040052010	1		39	Jack RCA(2P)	G601200099020	1						
	Poly Bag	6330040092010	1		40	Jack RCA(2P)	G601200440020	1						
					41	Jack RCA(4P)	G602400450050	1						
					42	Jack RCA(2P)	G601200440020	1						
<b>Accessories</b>														
	Antenna Wire (FM)	E605010010000	1		43	Jack Multi Room	G402042070000	1	A					
	Antenna AM Loop Stand Strip Wire	E601010000000	1		44	Snap rivet	1560040036010	3						
	Ass'y Commander	8300040640020		K	45	Bushing Terminal	2410040270010	10	D,RDS					
	Ass'y Commander	8300040640010	1	A	46	Jumper Plug	L063040750000	2						
	Ass'y Commander	8300040520040	1	D,RDS	(47)	Chassis Back	3207053396030	1	K					
	Battery 1.5 V AA(R6M)	G670001R50010	2	D,RDS	(47)	Chassis Back	3207053396010	1	A					
	Manual Instruction	5707046780010	1	K	(47)	Chassis Back	3207053396020	1	D					
	Manual Instruction	5707046690010	1	A	48	Chassis Back	3207053396040	1	RDS					
	Manual Instruction	5707046700010	1	D,RDS	49	Stopper Cord	4380040162010	1						
	Warranty Card	5727041570010	1	K	50	AC Power Cord	L061040050010	1	A					
	Warranty Card	5727040060010	1	A	51	Terminal GND	3790000090000	1						
	Warranty Card	5727041620020	1	D,RDS	52	Cover Top	3000045396010	1						
					53	Sponge	4050043525010	1						
					(53)	ANT Terminal	G590040470000	1	A,K					
					54	ANT Terminal	G59004046000A	1	D,RDS					
1	Panel Front	3067046398040	1	K	55	Button Power	509005399101A	1	D,RDS					
(1)	Panel Front	3067046248010	1	A	56	AC Outlet	G435040110000	1	D,RDS					
(1)	Panel Front	3067046248030	1	D	(55)	AC Outlet	G435000160010	1	K					
(1)	Panel Front	3067046248020	1	RDS	56	AC Power Cord	L061040210010	1	K					
2	Knob Main	5087041501010	1		(56)	AC Power Cord	L061040090010	1	D,RDS					
3	Knob Encoder	5087040778010	1		(56)	AC Power Cord	L061000390060	1	RICHER					
4	Knob Rotary	5097050641010	3		57	Rubber Sponge	4050042695010	1						
5	Badge, Sherwood Newcastle	5637040591010	1		58	Bracket Heat Sink	4010057166010	5						
6	LED Guide	4350041551010	1		59	Shield Plate	3070046716010	1						
7	Decoration Cap	5127040931050	1	K	<b>Hardware Kit</b>									
(7)	Decoration Cap	5127040931030	1	A	S1	Screw, #2FTC 3×8B	B010530083F10	2						
(7)	Decoration Cap	5127040931040	1	D,RDS	S2	Screw, #B BTT 3×8B	B020030083B10	86						
8	Window FL	5077040063030	1	A,K	S3	Screw, #B WPTT 3×18Y	B020030181X10	3						
(8)	Window FL	5077040063040	1	D,RDS	S4	Screw, BSAM 4×8B	B020940083B10	6						
9	Body Front	3417040721050	1	K	S5	Screw, WSAM 4×8B	B020940083V10	4						
(9)	Body Front	3417040721030	1	A	S6	Screw, GUIDE 3×16Y	1507041456010	2						
(9)	Body Front	3417040721040	1	D	S7	Screw, HEAT SINK	1507041146010	10						
(9)	Body Front	3417040731020	1	RDS	S8	Screw, GND	1507040996010	11						
10	Indicator Stanby	5160040643010	1		S9	Screw, #B WPTT 3×6Y	B020030061W10	12						
11	Indicator	5070044421010	4		<b>Miscellaneous</b>									
12	Button Power	5090059071010	1		SW1	Switch Power	G000041610000	1	K,D,RDS					
13	Button Stanby	5090059231010	1		SW2	Switch Push	G000041170000	1						
14	Jack Phone(G)	G402040161330	1		SW3	Switch Tact	G180040500010	1	A					
15	Button Push	5090066821010	1		SW4-20	Switch Tact	G180040500010	17						
16	Bracket Jack/SW	4010043616010	1		SW21-25	Switch Tact	G180040500010	5	RDS					
17	Holder FL	4320040841010	2		SW26-42	Switch Tact	G180040500010	17						
18	Jack RCA	G606040300000	1		VR1	VR Treble/Bass	C455121402300	2						
19	Foot AL	4007041021010	2	A,K	VR2	VR Balance	C455111402000	1						
(19)	Foot AL	4007040201010	2	D,RDS	VR3	VR Encoder	C450042030010	1						
20	Foot PL	4000040201010	2		VR4	VR Main	C49004106001A	1						
21	Chassis Ass'y	3208056416200	1											
22	Cover Power	1240044012010	1	DP,RDSP										
23	Knob Spacer	4300040561010	4											
24	Heat Sink Reg TR	2120043538020	2											
25	Heat Sink Reg TR	2120044358010	1											
26	Heat Sink Reg TR	2120044808010	2											
27	Bracket H/Sink	4010056906010	5											
28	Bracket H/Sink	4010056896010	1											
29	H/Sink Power	2120044988010	1											
30	Cover Fuse	1240044022010	1	DP,RDSP										
31	AC Outlet	G435040070000	1	A										
32	Terminal Speaker(8P)	G614081036000	1											
33	Terminal Speaker(2P)	G611040310000	1											
34	Jack RCA(9P)	G607901220040	1											
35	Jack RCA(9P)	G607901220050	1											

## **EXPLODED VIEW**

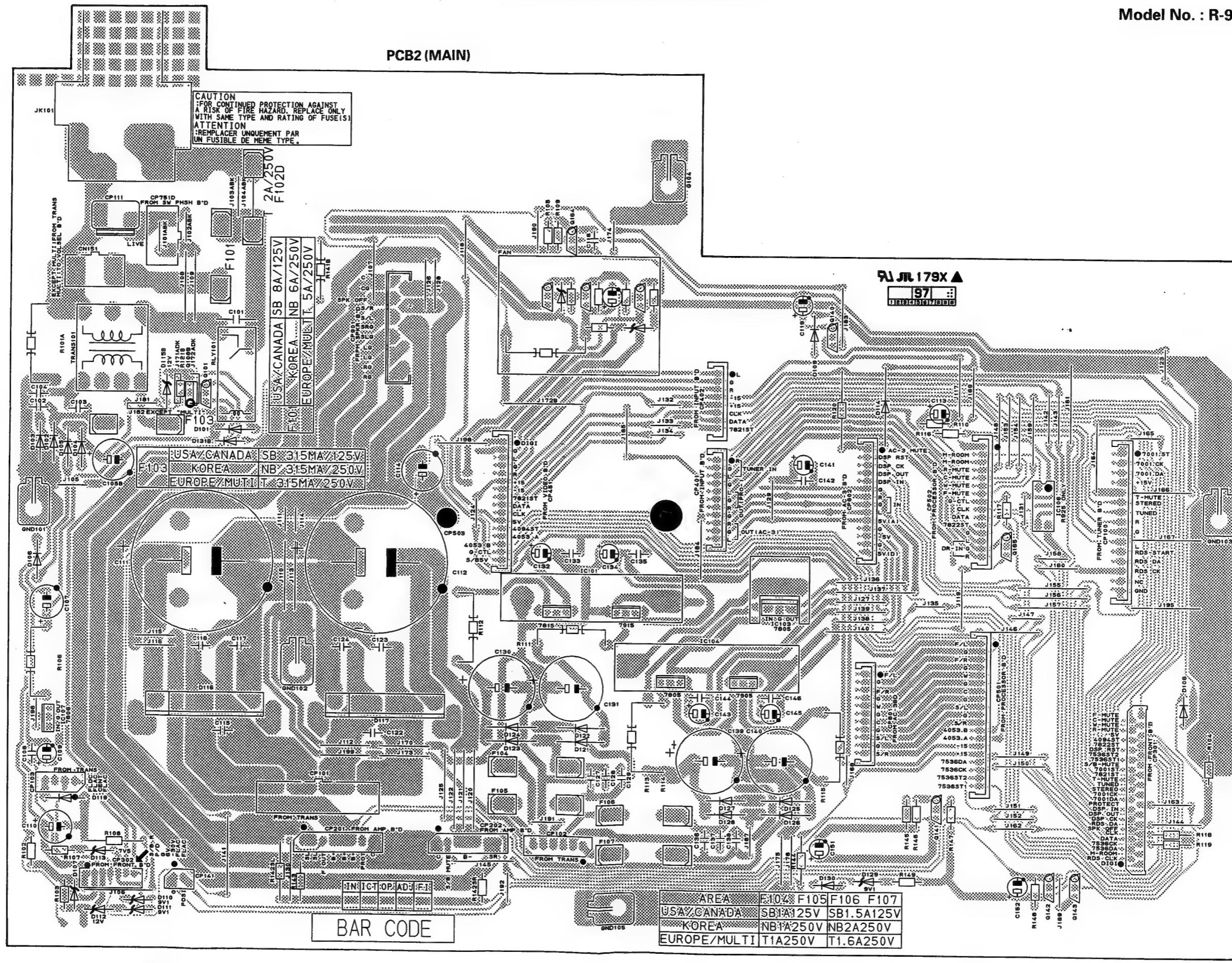
**Model No. : R-925R/R-925RDS**



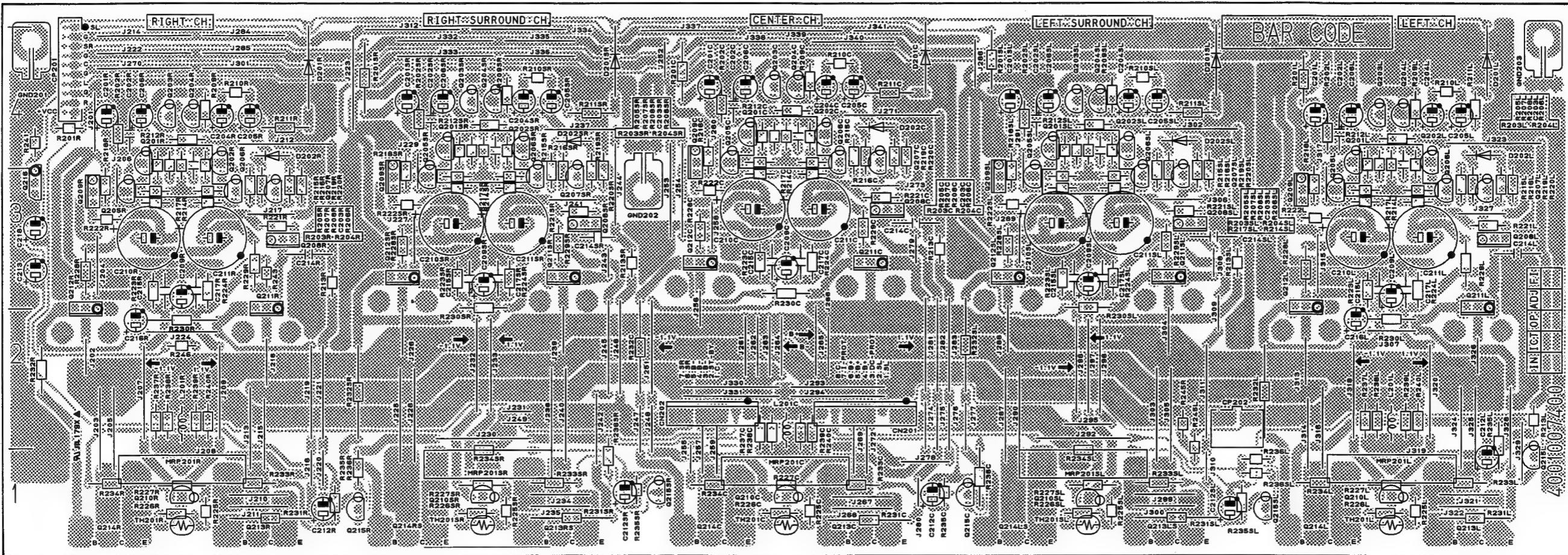
## **PRINTED CIRCUIT BOARDS**

**Model No. : R-925R/R-925RDS**

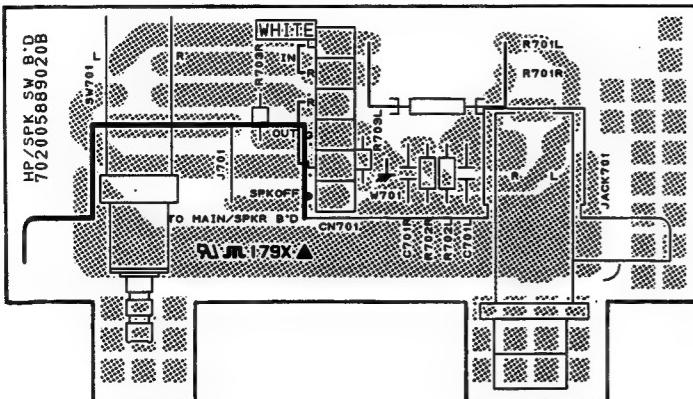
PCB2 (MAIN)



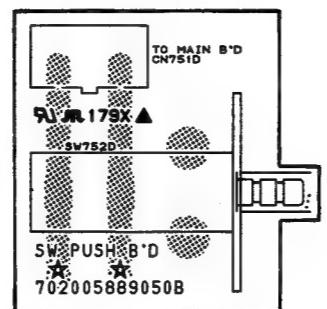
PCB3 (AMP)



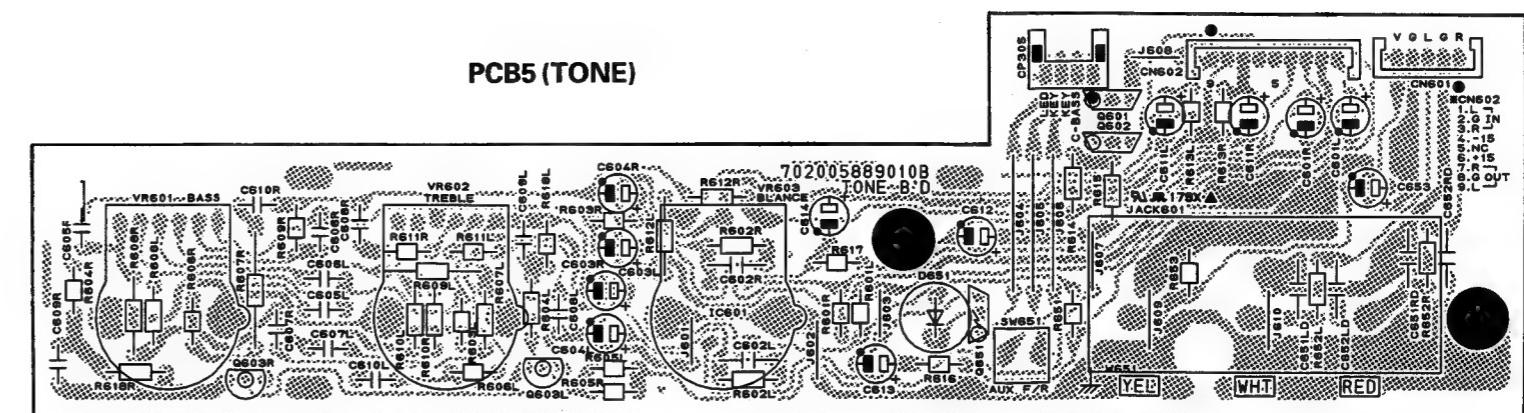
## **PCB6 (HP/SPK SWITCH)**



**PCB8 (PUSH SWITCH)  
"D" ONLY**

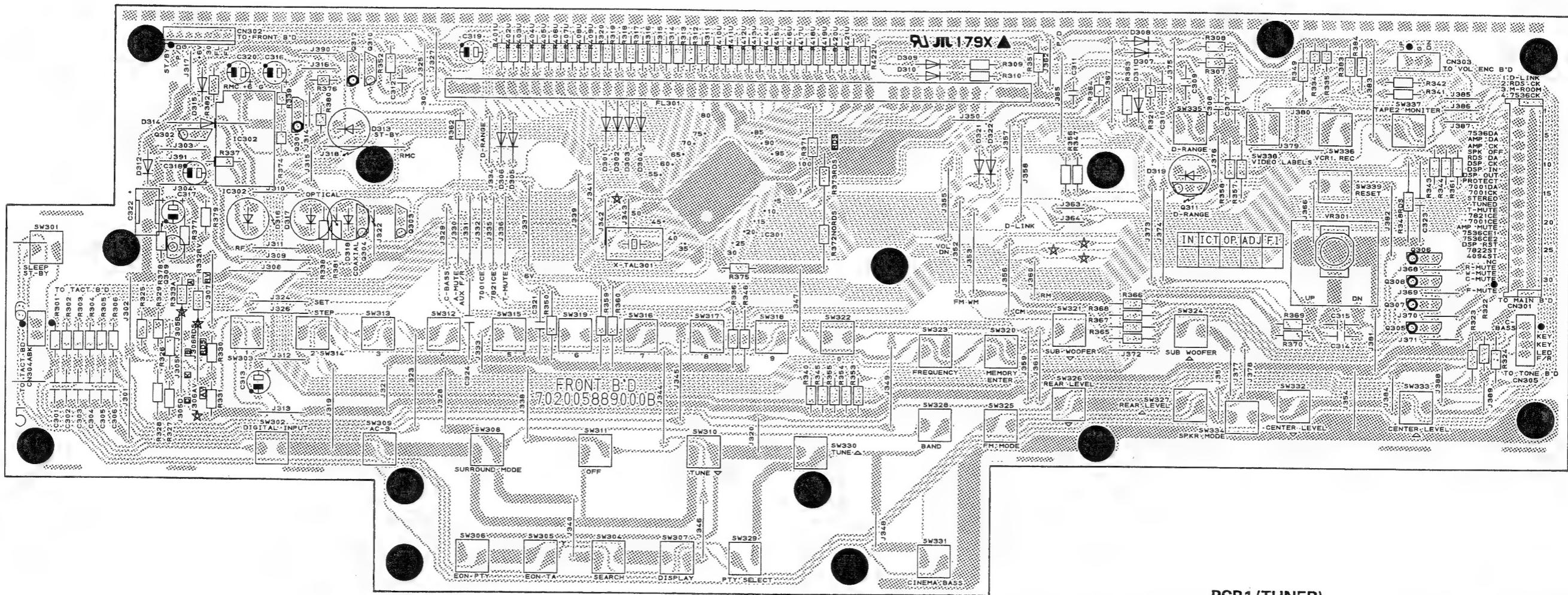


PCB5 (TONE)

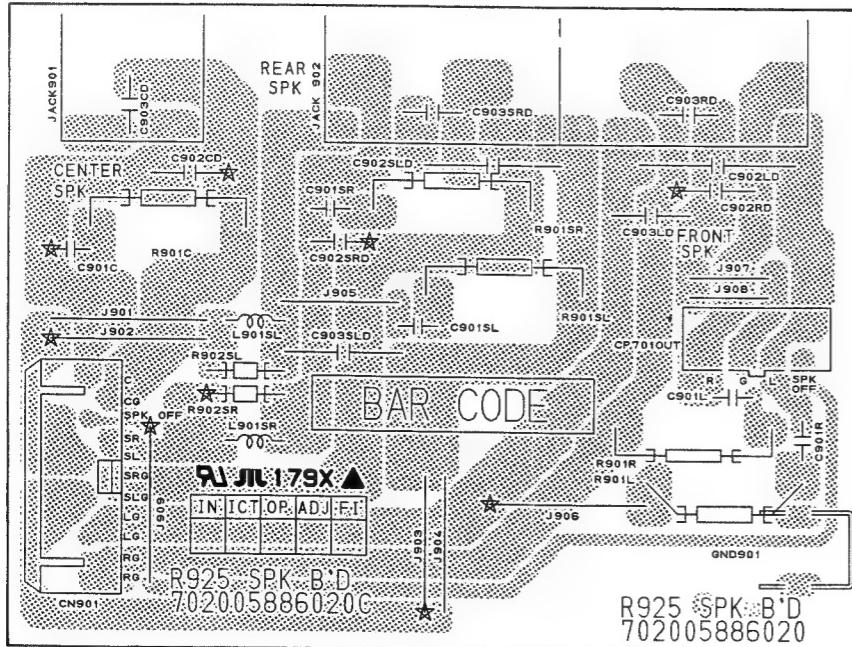


PCB4 (FRONT)

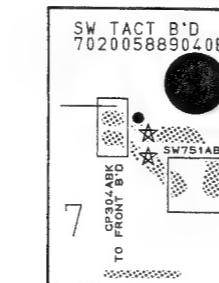
Model No. : R-925R/R-925RDS



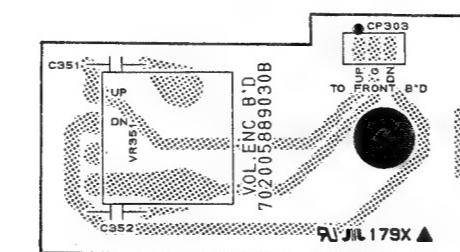
PCB12 (SPEAKER)



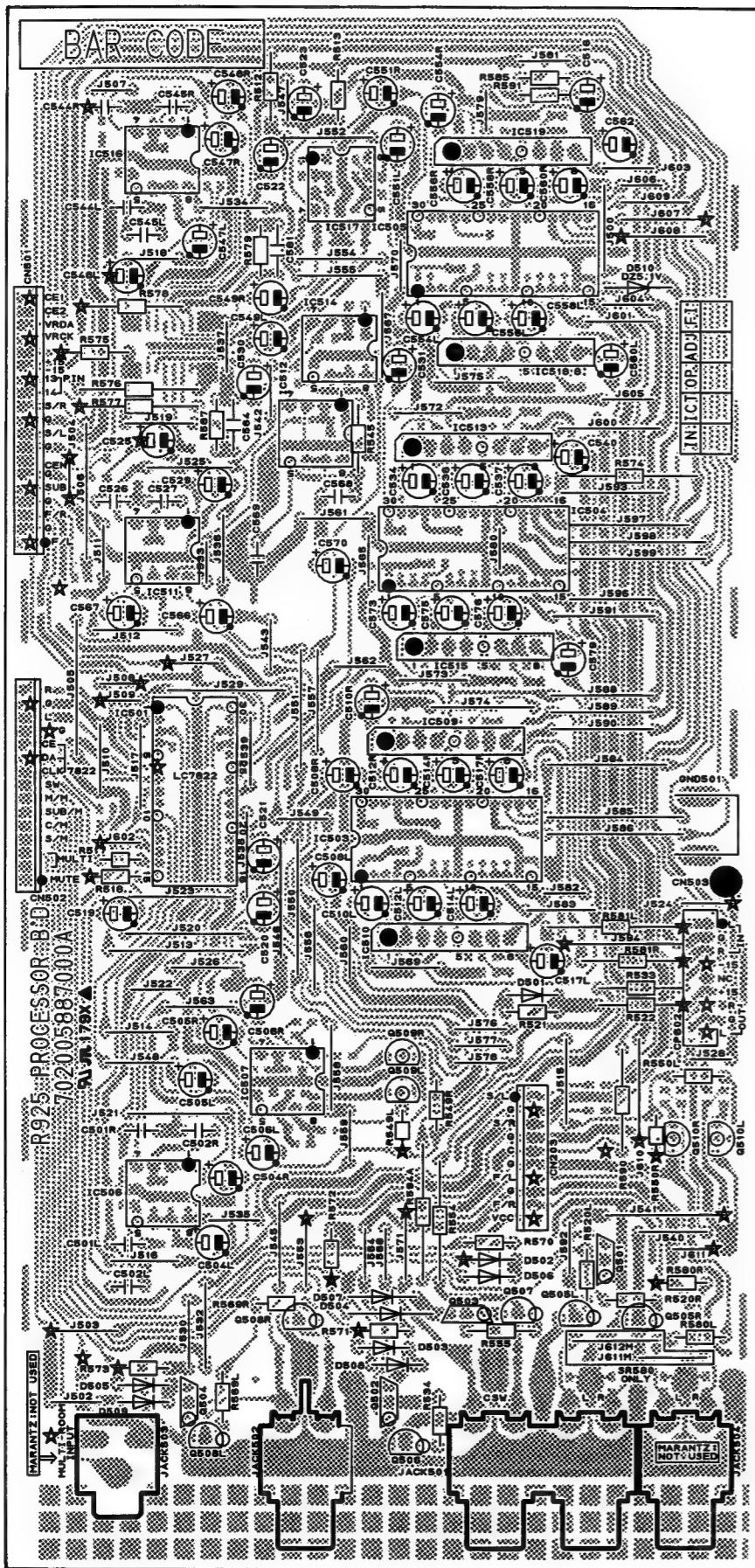
PCB7 (TACT SWITCH)



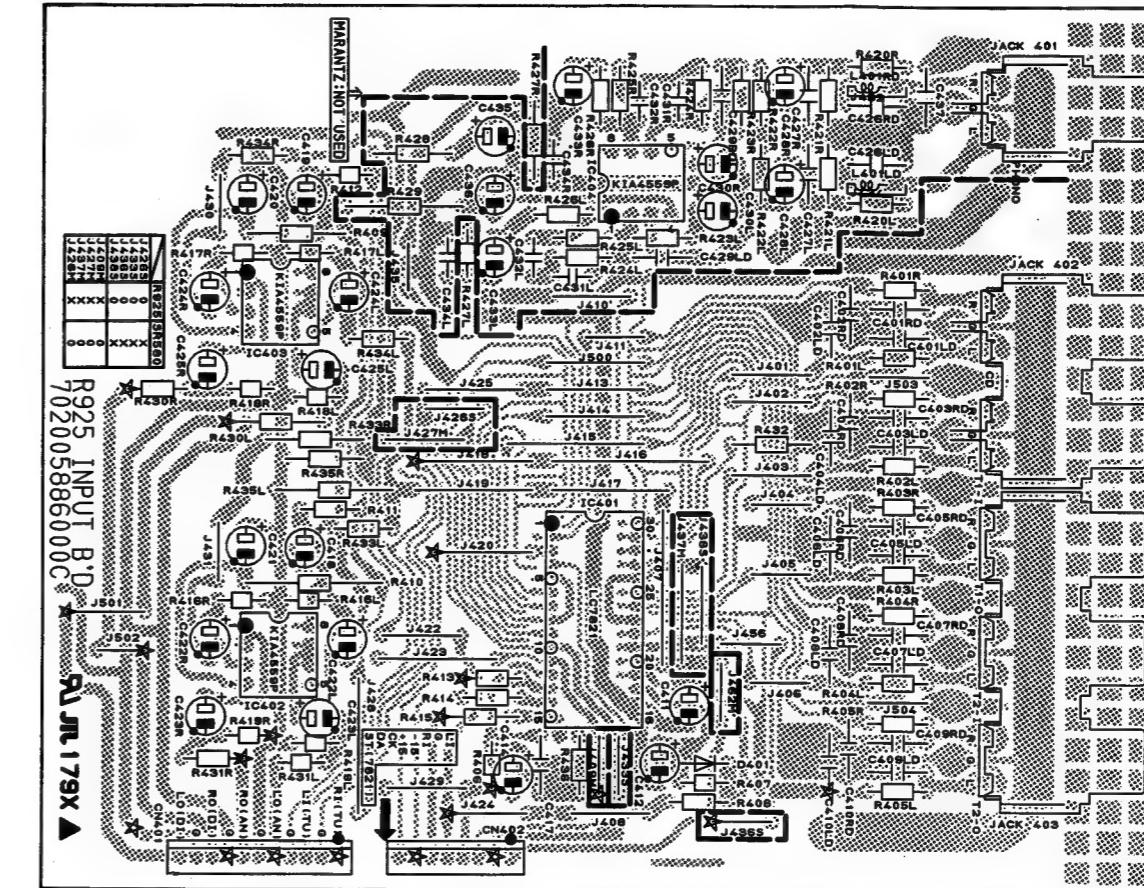
PCB9 (ENCODER)



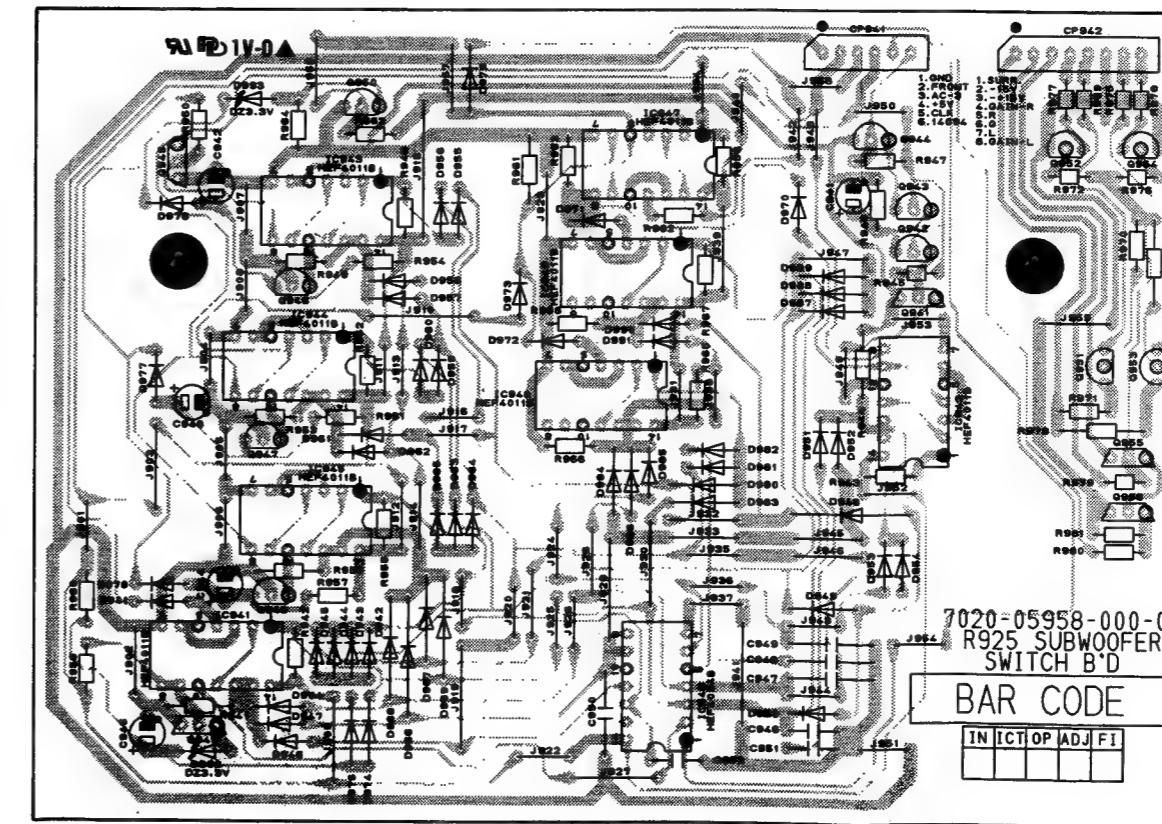
## **PCB13 (PROCESSOR)**



PCB10 (INPUT)



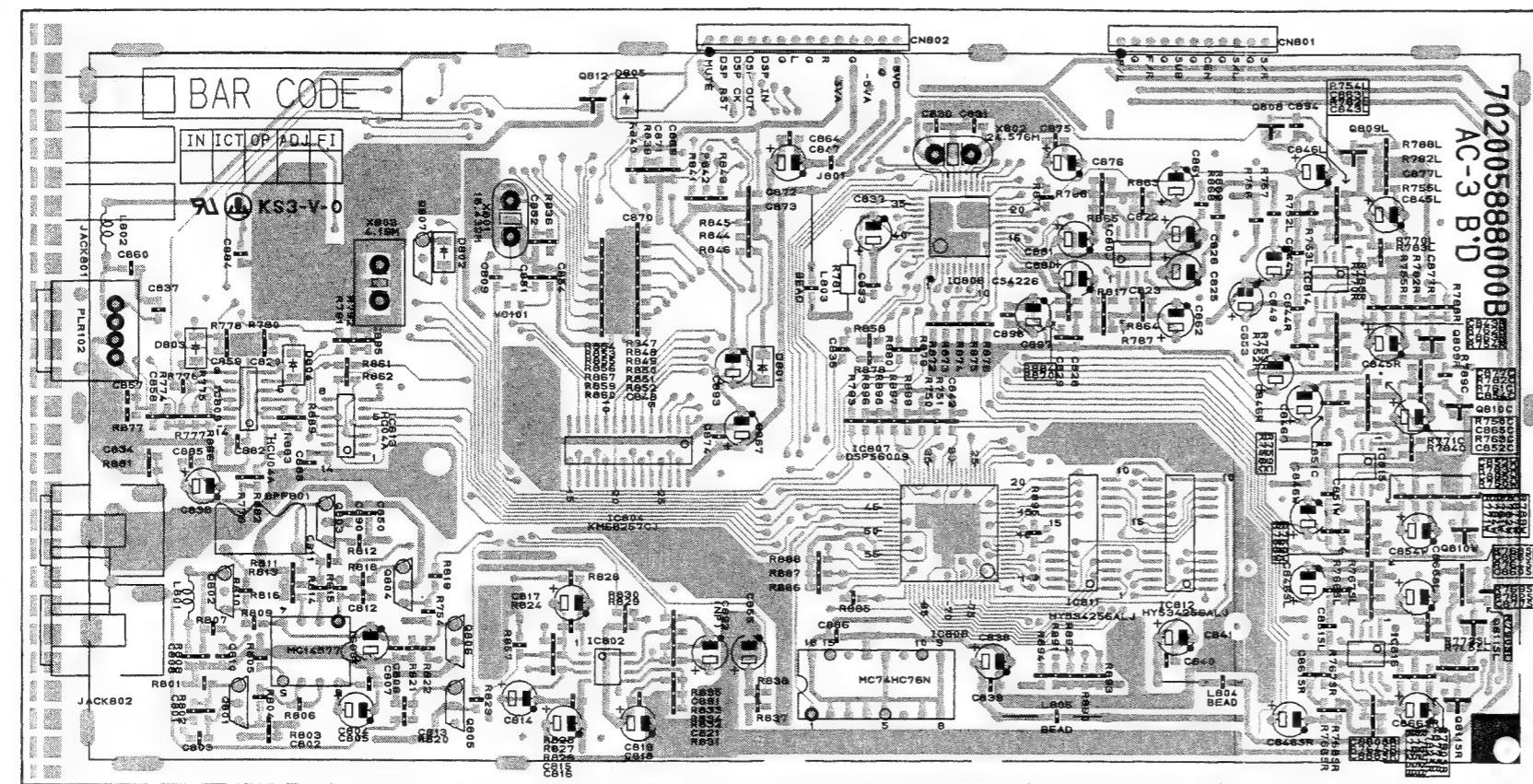
PCB15 (SUB WOOFER)



**Model No. : R-925R/R-925RDS**

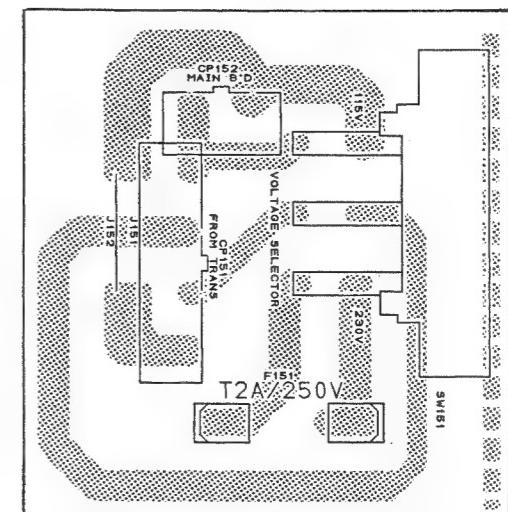
PCB14(AC-3)

-TOP VIEW-



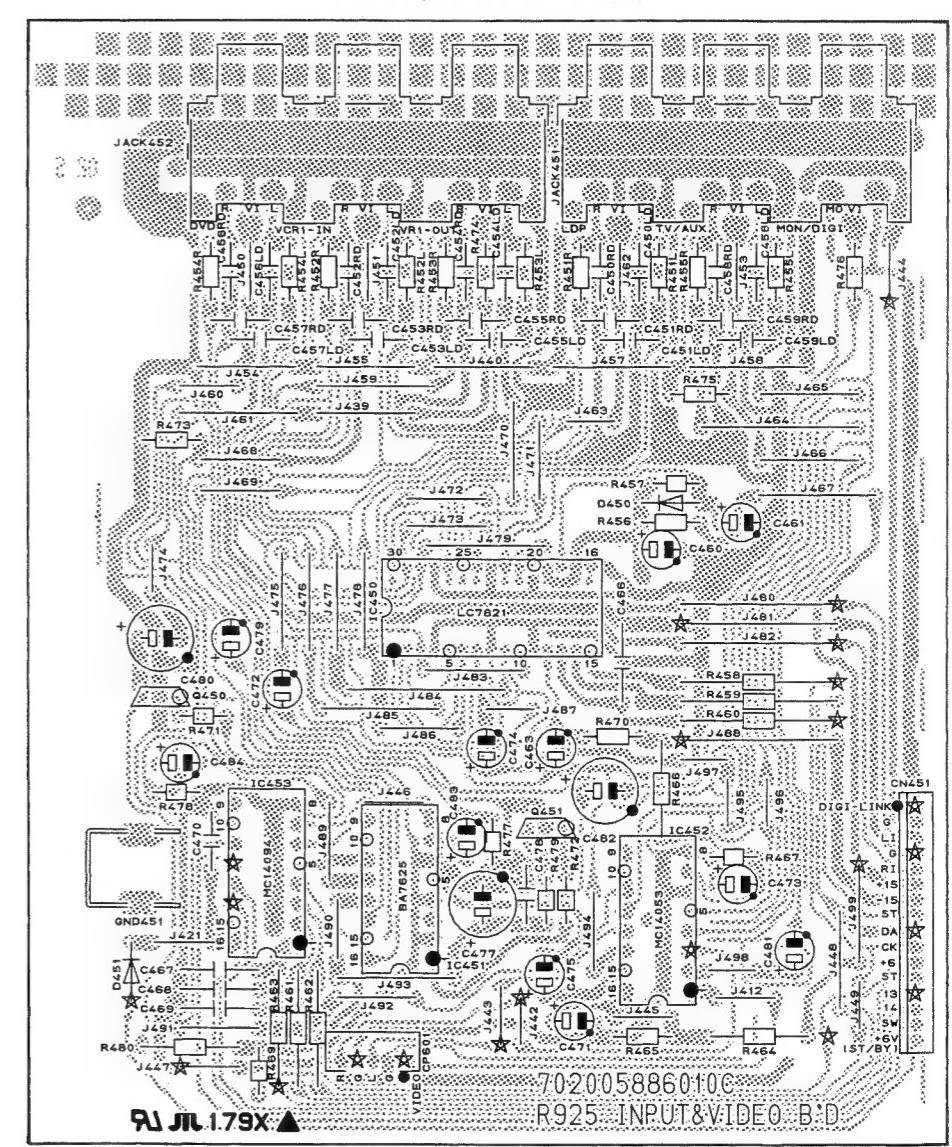
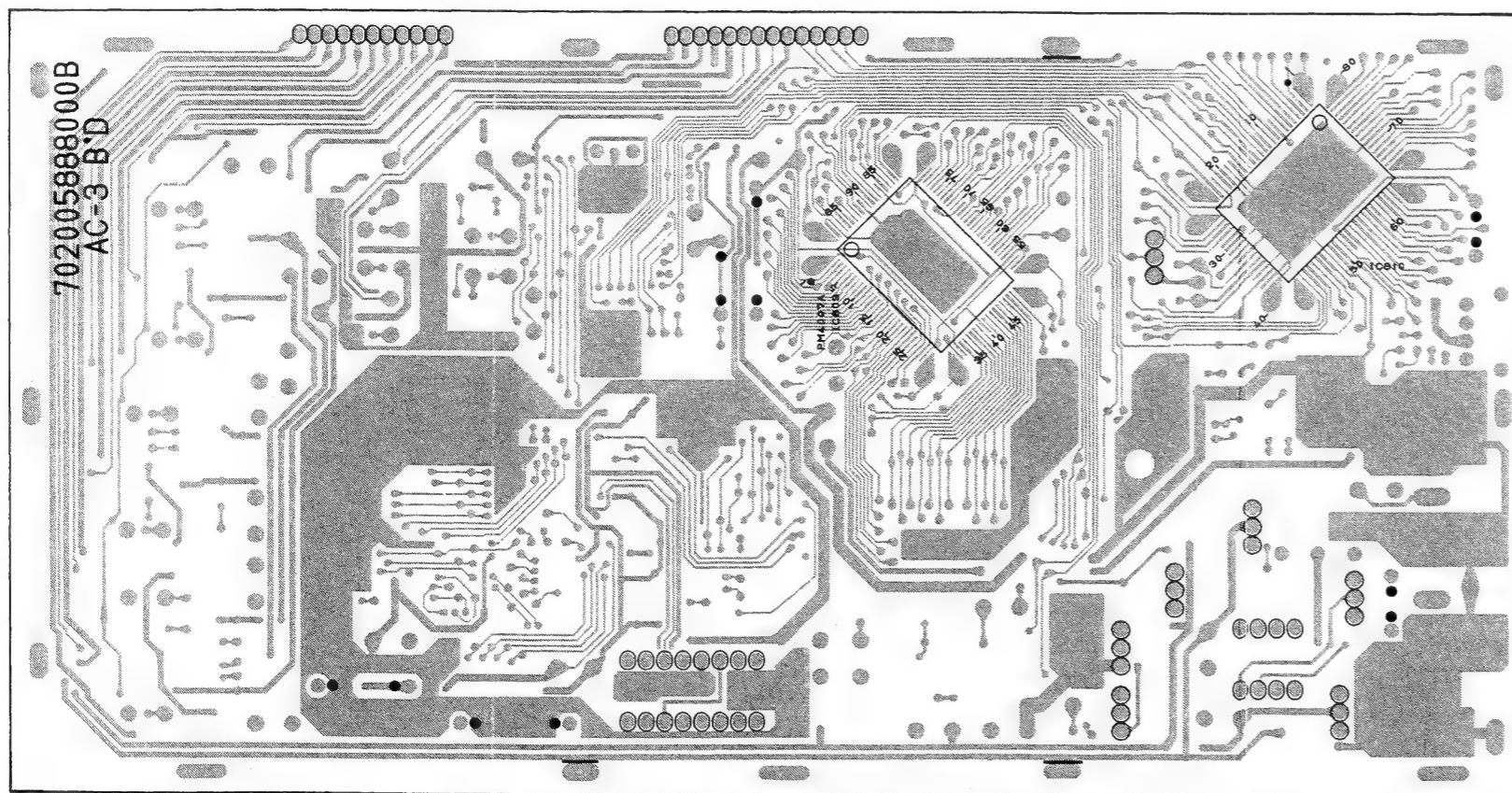
Model No. : R-925R/R-925RDS

VOL SEL(PT INDO ONLY)



PCB14(AC-3)

-BOTTOM VIEW-



## ELECTRICAL PARTS LIST

\*Parts without Parts No are not supplied.

\*Parts with blank version are available in common.

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version					
PCB1	ASSEMBLY P.C.BOARD TUNER	7028040887800	K		R5	Metal Film	470 ohm	1/5 W	J	C06004716P520	1	C20	Elect GE	10 uF	35 V	M	D040100085100	1	
PCB1	ASSEMBLY P.C.BOARD TUNER	7028040889200	A		R6	Carbon Film	100 kohm	1/5 W	J	C00001046P520	1	C21/22	Ceramic H/K Axial	0.022 uF	25 V	Z	D00522374530	2	
	<b>Capacitors</b>				R7	Carbon Film	10 kohm	1/5 W	J	C00001036P520	1	C23	Ceramic H/K Axial	10000 pF	16 V	Z	D005103773530	1	
C1	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	R8	Metal Film	270 ohm	1/5 W	J	C06002716P520	1	C24/25	Ceramic H/K Disc	0.022 uF	50 V	M	D0404R7087100	2
C2	Ceramic H/K Disc	0.047 uF	50 V	Z D004473097060	1	R9	Metal Film	560 ohm	1/5 W	J	C06005616P520	1	C26	Elect GE	4.7 uF	50 V	M	D0404R7087100	1
C3	Elect GE	3.3 uF	50 V	M D0403R3087100	1	R10	Metal Film	1 kohm	1/5 W	J	C06001026P520	1	C27	Elect GE	3.3 uF	50 V	M	D0403R3087100	1
C4	Ceramic H/K Axial	10000 pF	16 V	D005103773530	1	R11	Metal Film	180 ohm	1/5 W	J	C06001816P520	1	C28	Elect GE	4.7 uF	50 V	M	D0404R7087100	1
C5	Elect GE	47 uF	16 V	M D040470083100	1	R12	Metal Film	560 ohm	1/5 W	J	C06005616P520	1	C29	Ceramic H/K Disc	0.022 uF	50 V	Z	D004223097060	1
C6	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	R13	Metal Film	3.3 kohm	1/5 W	J	C06003326P520	1	C30	Film Polyester	0.022 uF	100V	J	D02022306C060	1
C7	Ceramic H/K Axial	10000 pF	16 V	D005103773530	1	R14	Metal Film	560 ohm	1/5 W	J	C06005616P520	1	C31	Film Polyester	0.033 uF	100V	J	D02033206C060	1
C8/9	Ceramic Disc	18 pF	50 V	J D000180167070	2	R15	Metal Film	470 ohm	1/5 W	J	C06004716P520	1	C32	Film Polyester	0.039 uF	100V	J	D02039306C060	1
C10	Ceramic H/K Disc	100 pF	50 V	J D004101067060	1	R16	Metal Film	100 ohm	1/5 W	J	C06001016P520	1	C33	Elect GE	1 uF	50 V	M	D040010087100	1
C11	Elect GE	47 uF	16 V	M D040470083100	1	R17-19	Metal Film	1 kohm	1/5 W	J	C06001026P520	3	C34	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	
C12	Ceramic H/K Disc	0.022 uF	50 V	Z D004223097060	1	R20	Metal Film	330 ohm	1/5 W	J	C06003316P520	1	C35	Elect GE	100 uF	16 V	M	D040101083100	1
C13	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	R21	Metal Film	270 ohm	1/5 W	J	C06002716P520	1	C36	Ceramic H/K Disc	330 pF	50 V	J	D004331067060	1
C14	Elect GE	100 uF	16 V	M D040101083100	1	R22	Metal Film	470 ohm	1/5 W	J	C06004716P520	1	C37C	Ceramic Disc	82 pF	50 V	J	D000820067060	1
C15	Film Styler	470 pF	50 V	J D022471067050	1	R24	Metal Film	4.7 kohm	1/5 W	J	C06004726P520	1	C38C	Ceramic H/K Disc	100 pF	50 V	J	D004101067060	1
C16	Ceramic Disc	15 pF	50 V	J D000150167070	1	R25	Carbon Film	68 kohm	1/5 W	J	C000066836P520	1	C39	Elect GE	10 uF	35 V	M	D040010085100	1
C17/18	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	2	R26	Carbon Film	18 kohm	1/5 W	J	C00001836P520	1	C40D	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	
C20	Elect GE	10 uF	35 V	M D040100085100	1	R27	Carbon Film	10 kohm	1/5 W	J	C00001036P520	1	C41	Elect GE	4.7 uF	50 V	M	D0404R7087100	1
C21/22	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	2	R28	Carbon Film	22 kohm	1/5 W	J	C06002236P520	1	C42	Ceramic H/K Axial	0.047 uF	50 V	J	D005473097530	1
C23	Ceramic H/K Axial	10000 pF	16 V	D005103773530	1	R29	Metal Film	22 ohm	1/5 W	J	C06002206P520	1	C43	Ceramic H/K Disc	680 pF	50 V	J	D004681067060	1
C24/25	Ceramic H/K Disc	0.022 uF	50 V	Z D004223097060	2	R30	Metal Film	4.7 kohm	1/5 W	J	C06004726P520	1	C44	Elect GE	100 uF	16 V	M	D040101083100	1
C26	Elect GE	4.7 uF	50 V	M D0404R7087100	1	R31	Carbon Film	10 kohm	1/5 W	J	C00001036P520	1	C45	Elect GE	1 uF	50 V	M	D040010087100	1
C27	Elect GE	3.3 uF	50 V	M D0403R3087100	1	R32	Carbon Film	5.6 kohm	1/5 W	J	C00005626P520	1	C46	Elect GE	0.22 uF	50 V	M	D040R22087100	1
C28	Elect GE	4.7 uF	50 V	M D0404R7087100	1	R33	Metal Film	3.3 kohm	1/5 W	J	C06003326P520	1	C47	Elect GE	1 uF	50 V	M	D0404R10087100	1
C29	Ceramic H/K Disc	0.022 uF	50 V	Z D004223097060	1	R34	Metal Film	100 ohm	1/5 W	J	C06001016P520	1	C48	Ceramic H/K Disc	0.022 uF	50 V	Z	D004223097060	1
C30	Film Polyester	0.022 uF	100V	J D02022306C060	1	R39	Metal Film	100 ohm	1/5 W	J	C06001016P520	1	C49	Elect GE	10 uF	35 V	M	D040100085100	1
C31	Film Polyester	0.0033 uF	100V	J D02033206C060	1	R40	Carbon Film	47 kohm	1/5 W	J	C00004736P520	1	C50L	Ceramic H/K Disc	220 pF	50 V	J	D004221067060	1
C32	Film Polyester	0.039 uF	100V	J D02039306C060	1	R41	Carbon Film	22 kohm	1/5 W	J	C00002236P520	1	C50R	Ceramic H/K Disc	220 pF	50 V	J	D004221067060	1
C33	Elect GE	1 uF	50 V	M D040010087100	1	R42	Metal Film	3.3 kohm	1/5 W	J	C06003326P520	1	C51L/R	Elect GE	10 uF	35 V	M	D040100085100	2
C34	Ceramic H/K Axial	0.022 uF	25 V	D005223574530	1	R43	Carbon Film	22 kohm	1/5 W	J	C00002236P520	1	C53	Elect GE	10 uF	35 V	M	D040100085100	1
C35	Elect GE	100 uF	16 V	M D040101083100	1	R44	Carbon Film	47 kohm	1/5 W	J	C00004736P520	1	C54D	Ceramic H/K Axial	270 pF	50 V	J	D005271077530	1
C36	Ceramic H/K Disc	330 pF	50 V	J D004331067060	1	R46L/R	Carbon Film	120 kohm	1/5 W	J	C0001246P520	2	C55D	Elect GE	47 uF	16 V	M	D040470083100	1
C39	Elect GE	10 uF	35 V	M D040100085100	1	R47L/R	Carbon Film	180 kohm	1/5 W	J	C0001846P520	2	C56D	Elect GE	10 uF	35 V	M	D040100085100	1
C41	Elect GE	4.7 uF	50 V	M D0404R7087100	1	R48L/R	Metal Film	2.7 kohm	1/5 W	J	C06002726P520	2	C57D	Ceramic H/K Axial	0.1 uF	50 V	J	D005104097530	1
C42	Ceramic H/K Axial	0.047 uF	50 V	D005473097530	1	R49L/R	Metal Film	3.3 kohm	1/5 W	J	C06003326P520	2	C58D/59D	Ceramic H/K Disc	27 pF	50 V	J	D004270067060	2
C43	Ceramic H/K Disc	680 pF	50 V	J D004681067060	1	R57L/R	Metal Film	1.5 kohm	1/5 W	J	C06001526P520	2	C60D	Ceramic H/K Disc	0.1 uF	50 V	Z	D004104097060	1
C44	Elect GE	100 uF	16 V	M D040101083100	1							C62L/R	Ceramic Disc	10 pF	50 V	J	D000100067060	2	
C45	Elect GE	1 uF	50 V	M D040010087100	1</td														

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	
R4	Carbon Film	100 kohm	1/5 W	J C00001046P520	1	C130/131	Elect GE	2200 uF	35 V	M D040222085200	2	Q140	DTA114YS, NPN	J601114YS0050	1
R5	Metal Film	470 ohm	1/5 W	J C06004716P520	1	C132	Elect GE	1 uF	50 V	M D040010087100	1	Q141	BKTA126T, PNP	J5001267Y0050	1
R6	Carbon Film	100 kohm	1/5 W	J C00001046P520	1	C133	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1	Q142/143	2SC1740S, NPN	J5021740S0010	2
R7	Carbon Film	10 kohm	1/5 W	J C00001036P520	1	C134	Elect GE	1 uF	50 V	M D040010087100	1	Q164	BKTC3199, NPN	J5023199Y0050	1
R8	Metal Film	270 ohm	1/5 W	J C06002716P520	1	C135	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1	Q165	DTC114YS, NPN	J6020114Y0050	1
R9	Metal Film	560 ohm	1/5 W	J C06005616P520	1	C136~138	Film Polyester	0.047 uF	100 V	J D02047306C060	3				
R10	Metal Film	1 kohm	1/5 W	J C06001026P520	1	C139	Elect GE	10000 uF	16 V	M D040103083020	1				
R11	Metal Film	180 ohm	1/5 W	J C06001816P520	1	C140	Elect GE	2200 uF	16 V	M D040222083020	1				
R12	Metal Film	560 ohm	1/5 W	J C06005616P520	1	C141	Elect GE	1 uF	50 V	M D040010087100	1				
R13	Metal Film	3.3 kohm	1/5 W	J C06003326P520	1	C142	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1				
R14	Metal Film	560 ohm	1/5 W	J C06005616P520	1	C143	Elect GE	1 uF	50 V	M D040010087100	1				
R15	Metal Film	470 ohm	1/5 W	J C06004716P520	1	C144	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1				
R16	Metal Film	100 ohm	1/5 W	J C06001016P520	1	C145	Elect GE	1 uF	50 V	M D040010087100	1				
R17/18	Metal Film	1 kohm	1/5 W	J C06001026P520	2	C146	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1				
R20	Metal Film	330 ohm	1/5 W	J C06003316P520	1	C151	Elect GE	1 uF	50 V	M D040010087100	1				
R21	Metal Film	270 ohm	1/5 W	J C06002716P520	1	C152	Elect GE	470 uF	6.3 V	M D040471081100	1				
R22	Metal Film	470 ohm	1/5 W	J C06004716P520	1										
R24	Metal Film	4.7 kohm	1/5 W	J C06004726P520	1										
R25	Carbon Film	68 kohm	1/5 W	J C00006836P520	1										
R26	Carbon Film	47 kohm	1/5 W	J C00004736P520	1										
R27	Carbon Film	10 kohm	1/5 W	J C00001036P520	1										
R28	Carbon Film	22 kohm	1/5 W	J C00002236P520	1										
R29	Metal Film	22 ohm	1/5 W	J C06002206P520	1										
R30	Metal Film	4.7 kohm	1/5 W	J C06004726P520	1										
R31	Metal Film	2.7 kohm	1/5 W	J C06002726P520	1										
R32	Carbon Film	5.6 kohm	1/5 W	J C00005626P520	1										
R33	Metal Film	3.3 kohm	1/5 W	J C06003326P520	1										
R34	Metal Film	100 ohm	1/5 W	J C06001016P520	1										
R35C	Metal Film	1.8 kohm	1/5 W	J C06001826P520	1										
R36D	Carbon Film	47 kohm	1/5 W	J C00004736P520	1										
R37D	Metal Film	22 ohm	1/5 W	J C06002206P520	1										
R38D	Metal Film	1 kohm	1/5 W	J C06001026P520	1										
R39	Metal Film	100 ohm	1/5 W	J C06001016P520	1										
R40	Carbon Film	47 kohm	1/5 W	J C00004736P520	1										
R41	Carbon Film	22 kohm	1/5 W	J C00002236P520	1										
R42	Metal Film	3.3 kohm	1/5 W	J C06003326P520	1										
R43	Carbon Film	22 kohm	1/5 W	J C00002236P520	1										
R44	Carbon Film	47 kohm	1/5 W	J C00004736P520	1										
R46L/R	Carbon Film	220 kohm	1/5 W	J C00002246P520	2										
R47L/R	Carbon Film	270 kohm	1/5 W	J C00002746P520	2										
R48L/R	Metal Film	2.7 kohm	1/5 W	J C06002726P520	2										
R49L/R	Metal Film	3.3 kohm	1/5 W	J C06003326P520	2										
R50D	Metal Film	680 ohm	1/5 W	J C06006816P520	1										
R52D/53D	Carbon Film	10 kohm	1/5 W	J C00001036P520	2										
R56D	Carbon Film	2.2 M ohm	1/5 W	J C00002256P520	1										
R57L/R	Metal Film	1.5 kohm	1/5 W	J C06001526P520	2										
<b>Semi Fixed Variable Resistors</b>															
VR1	5K(B)-H			C541502115000	1										
VR2	50K(B)-H			C541503115000	1										
VR3	200K(B)-H			C541204115000	1										
<b>Miscellaneous</b>															
CN100	PLUG, 15P M.O.			L112524191900	1										
FE1	Tuner FM, FTH4-460H			E900446000110	1										
TC1	Trimmer Ceramic, 10 pF			D11010901100	1										
X1	7.2 MHz			E800720000080	1										
X2	Resonator, CSB456F			E830456000050	1										
X3D	4.332 MHz			E800433200060	1										
PCB2	ASSEMBLY P.C.BOARD MAIN			7028040887000	K										
PCB2	ASSEMBLY P.C.BOARD MAIN			7028040888400	A										
PCB2	ASSEMBLY P.C.BOARD MAIN			7028040889800	D										
PCB2	ASSEMBLY P.C.BOARD MAIN			7028040891200	RDS										
<b>Capacitors</b>															
C101	Ceramic AC (Safety)	0.0047 uF	400 VA	D00847208K03D	1										
C102~104	Film Polyester	0.047 uF	100 V	J D02047306C060	3										
C107	Elect GE	330 uF	25 V	M D040331084100	1										
C108	Ceramic H/K Disc	0.1 uF	50 V	Z D004104097060	1										
C109	Elect GE	1 uF	50 V	M D040010087100	1										

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	
CP201	Wafer 2.0mm, 10P	L104353130200	1		R218SL/SR	Metal Film	4.7 kohm	1/5 W	J C06004726P520	2	D301~312	Diodes	K000414801520	12	
CP202	Wafer 3.96mm, 2P	L101220100000	1		R219L/R/C	Metal Film	560 ohm	1/5 W	J C06005616P520	3	D313	1N4148M, Switching	K500032101120	1	
	<b>Diodes</b>				R219SL/SR	Metal Film	560 ohm	1/5 W	J C06005616P520	2	D314/315	SLR-34URCF25, Round	K000414801520	2	
D201L/R/C	1N4148M, Switching	K000414801520	3		R220L/R/C	Metal Film	4.7 kohm	1/5 W	J C06004726P520	3	D316~319	1N4148M, Switching	K500032101120	4	
D201SL/SR	1N4148M, Switching	K000414801520	2		R220SL/SR	Metal Film	4.7 kohm	1/5 W	J C06004726P520	2	D321/322	SLR-34URCF25, Round	K000414801520	2	
D202L/R/C	1N4148M, Switching	K000414801520	3		R221L/R/C	Metal Film	82 ohm	1/5 W	J C06008206P520	3					
D202SL/SR	1N4148M, Switching	K000414801520	2		R221SL/SR	Metal Film	82 ohm	1/5 W	J C06008206P520	2					
	<b>Transistors</b>				R222L/R/C	Metal Film	82 ohm	1/5 W	J C06008206P520	3					
Q201L/R/C	KTA1268, PNP	J5001268B0050	3		R222SL/SR	Metal Film	82 ohm	1/5 W	J C06008206P520	2					
Q201SL/SR	KTA1268, PNP	J5001268B0050	2		R223L/R/C	Carbon Film	22 kohm	1/5 W	J C00002236P520	3					
Q202L/R/C	KTA1268, PNP	J5001268B0050	3		R223SL/SR	Carbon Film	22 kohm	1/5 W	J C00002236P520	2					
Q202SL/SR	KTA1268, PNP	J5001268B0050	2		R224L/R/C	Carbon Film	22 kohm	1/5 W	J C00002236P520	3					
Q203L/R/C	KTA1268, PNP	J5001268B0050	3		R224SL/SR	Carbon Film	22 kohm	1/5 W	J C00002236P520	2					
Q203SL/SR	KTA1268, PNP	J5001268B0050	2		R225L/R/C	Carbon Film	2 kohm	1/5 W	J C00002026P520	3					
Q204L/R/C	KTA1268, PNP	J5001268B0050	3		R225SL/SR	Carbon Film	2 kohm	1/5 W	J C00002026P520	2					
Q204SL/SR	KTA1268, PNP	J5001268B0050	2		R226L/R/C	Metal Film	680 ohm	1/5 W	J C06006816P520	3					
Q205L/R/C	BKTC3200, NPN	J50232200B0050	3		R226SL/SR	Metal Film	680 ohm	1/5 W	J C06006816P520	2					
Q205SL/SR	BKTC3200, NPN	J50232200B0050	2		R227L/R/C	Metal Film	1.2 kohm	1/5 W	J C06001226P520	3					
Q206L/R/C	BKTC3200, NPN	J50232200B0050	3		R227SL/SR	Metal Film	1.2 kohm	1/5 W	J C06001226P520	2					
Q206SL/SR	BKTC3200, NPN	J50232200B0050	2		R228L/R/C	Metal Film	220 ohm	1/5 W	J C06002216P520	3					
Q207L/R/C	KTA1268, PNP	J5001268B0050	3		R229L/R/C	Metal Film	75 ohm	1/5 W	J C06007506P520	2					
Q207SL/SR	KTA1268, PNP	J5001268B0050	2		R229SL/SR/C	Metal Film	220 ohm	1/5 W	J C06002216P520	3					
Q208L/R/C	2SA1360, PNP	J50013600000D	3		R230L/R/C	Metal Film	82 ohm	1/5 W	J C06008206P520	3					
Q208SL/SR	2SA1360, PNP	J50013600000D	2		R230SL/SR	Metal Film	82 ohm	1/5 W	J C06008206P520	2					
Q209L/R/C	2SC3423, NPN	J502342300000	3		R231L/R/C	Metal Film	3.3 ohm	1/5 W	J C0603R306P520	3					
Q209SL/SR	2SC3423, NPN	J50234230000	2		R231SL/SR	Metal Film	3.3 ohm	1/5 W	J C0603R306P520	2					
Q210L/R/C	2SC1740S, NPN	J5021740S0010	3		R232L/R/C	Metal Film	3.3 ohm	1/5 W	J C0603R306P520	3					
Q210SL/SR	2SC1740S, NPN	J5021740S0010	2		R233L/R/C	Metal Film	1.8 kohm	1/5 W	J C06001826P520	3					
Q211L/R/C	2SC4883, NPN	J5024883Y0000	3		R233SL/SR	Metal Film	1.8 kohm	1/5 W	J C06001826P520	2					
Q211SL/SR	2SC4883, NPN	J5024883Y0000	2		R234L/R/C	Carbon Film	2 kohm	1/5 W	J C00002026P520	3					
Q212L/R/C	2SA1859, PNP	J5001859Y0000	3		R234SL/SR	Carbon Film	2 kohm	1/5 W	J C00002026P520	2					
Q212SL/SR	2SA1859, PNP	J5001859Y0000	2		R235L/R/C	Metal Film	910 ohm	1/5 W	J C06009116P520	3					
Q213L/R/C	2SC5200, NPN	J502520000010	3		R235SL/SR	Metal Film	910 ohm	1/5 W	J C06009116P520	2					
Q213SL/SR	2SC5200, NPN	J502520000010	2		R236L/R/C	Carbon Film	6.8 kohm	1/5 W	J C00006826P520	3					
Q214L/R/C	2SA1943, PNP	J500194300010	3		R236SL/SR	Carbon Film	6.8 kohm	1/5 W	J C00006826P520	2					
Q214SL/SR	2SA1943, PNP	J500194300010	2		R237L/R/C	Metal Film	39 ohm	1/5 W	J C06003906P520	3					
Q215L/R/C	BKTC3200, NPN	J5023200B0050	3		R238L/R/C	Metal Film	39 ohm	1/5 W	J C06003906P520	3					
Q215SL/SR	BKTC3200, NPN	J5023200B0050	2		R239L/R/C	Metal Film	39 ohm	1/5 W	J C06003906P520	3					
	<b>Resistors</b>				R240L/R/C	Metal Film	39 ohm	1/5 W	J C06003906P520	3					
MRP201L/R/C	Cement MPR Dual	0.27 ohm	5 W	J C144R27069300	3	R241L/R/C	Carbon Film	560 ohm	1/5 W	J C06005616P520	1				
MRP201SL/SR	Cement MPR Dual	0.27 ohm	5 W	J C144R27069300	2	R242L/R/C	Metal Film	1 kohm	1/5 W	J C06001026P520	3				
R201L/R/C	Metal Film	1 kohm	1/5 W	J C06001026P520	3	R243	Metal Film	560 ohm	1/5 W	J C06005616P520	1				
R201SL/SR	Metal Film	1 kohm	1/5 W	J C06001026P520	2	R244L/R/C	Carbon Film	22 kohm	1/5 W	J C00002236P520	2				
R202L/R/C	Carbon Film	33 kohm	1/5 W	J C00003336P520	3	R245L/R/C	Metal Film	560 ohm	1/5 W	J C00002236P520	2				
R202SL/SR	Carbon Film	33 kohm	1/5 W	J C00003336P520	2	R246	Metal Film	560 ohm	1/5 W	J C06005616P520	1				
R203L/R/C	Metal Film	180 ohm	1/5 W	J C06001816P520	3										
R203SL/SR	Metal Film	180 ohm	1/5 W	J C06001816P520	2	<b>Miscellaneous</b>									
R204L/R/C	Metal Film	180 ohm	1/5 W	J C06001816P520	3	GND201	Terminal GND			3790040876010	1				
R204SL/SR	Metal Film	180 ohm	1/5 W	J C06001816P520	2	L201L/R/C	Filter Inductor, 0.5 uH			D330900001320	3				
R205L/R/C	Metal Film	1.5 kohm	1/5 W	J C06001526P520	3	TH201L/R/C	Thermistor, 3 kohm			F340530200000	3				
R205SL/SR	Metal Film	1.5 kohm	1/5 W	J C06001526P520	2	TH201SL/SR	Thermistor, 3 kohm			F340530200000	2				
R206L/R/C	Metal Film	1.5 kohm	1/5 W	J C06001526P520	3										
R206SL/SR	Metal Film	1.5 kohm	1/5 W	J C06001526P520	2	<b>ASSEMBLY P.C.BOARD FRONT ( PCB 4, 5, 6, 7, 8, 9 )</b>	7028040887400								
R207L/R/C	Not Used!					<b>ASSEMBLY P.C.BOARD FRONT ( PCB 4, 5, 6, 7, 8, 9 )</b>	7028040888800								
R207SL/SR	Not Used!					<b>ASSEMBLY P.C.BOARD FRONT ( PCB 4, 5, 6, 7, 8, 9 )</b>	7028								

Ref.No.	Description	Part No.	Q'ty	Version
C606L/R	Film Polyester	0.015 uF	63 V	J D020153068050 2
C607L/R	Film Polyester	0.022 uF	63 V	J D020223068050 2
C608L/R	Film Polyester	0.0033 uF	63 V	J D020332068050 2
C609L/R	Film Polyester	0.33 uF	63 V	J D020334068050 2
C610L/R	Film Polyester	0.0082 uF	63 V	J D020822068050 2
C611L/R	Elect GE	10 uF	16 V	M D040100083120 2
C612	Elect GE	3.3 uF	50 V	M D0403R3087100 1
C613/C614	Elect GE	47 uF	25 V	M D040470084100 2
C651LD/RD	Ceramic T.C Axial	100 pF	50 V	J D001101077530 2 D,RDS
C652LD/RD	Ceramic T.C Axial	100 pF	50 V	J D001101077530 2 D,RDS
C653	Elect GE	33 uF	25 V	M D040330084100 1

**Connectors**

CP305	Wafer, 2.0mm, 4P, ANGEL	L101220040010 1
CN601	Wafer, 2.0mm, 5P	L101220050000 1
CN602	CNT Ass'y, 5P	L021054584320 1
	Wafer, 2.0mm, 9P	L101220090000 1
	CNT Ass'y, 9P	L021094070320 1
W651	Lug Wire, 1P	L046241020580 1

**Diodes**

D651	SLR-56URCF14, Round	K500052101160 1
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**Transistors**

Q601	DTC114YS, NPN	J6020114Y0050 1
Q602	DTA114YS, PNP	J601114YS0050 1
Q603L/R	2SK117Y	J5441170Y0050 2
Q651	DTC114YS, NPN	J6020114Y0050 1

**Resistors**

R601L/R	Carbon Film	100 kohm 1/5 W	J C00001046P520	2
R602L/R	Carbon Film	1 Mohm 1/5 W	J C00001056P520	2
R603L/R	Carbon Film	47 kohm 1/5 W	J C00004736P520	2
R604L/R	Metal Film	2.7 kohm 1/5 W	J C06002726P520	2
R605L/R	Carbon Film	10 Mohm 1/5 W	J C00001066P520	2
R606L/R	Metal Film	4.7 kohm 1/5 W	J C06004726P520	2
R607L/R	Carbon Film	27 kohm 1/5 W	J C00002736P520	2
R608L/R	Metal Film	3.3 kohm 1/5 W	J C06003326P520	2
R609L/R	Carbon Film	22 kohm 1/5 W	J C00002236P520	2
R610L/R	Metal Film	560 ohm 1/5 W	J C06005616P520	2
R611L/R	Metal Film	2.2 kohm 1/5 W	J C06002226P520	2
R612L/R	Metal Film	1.8 kohm 1/5 W	J C06001826P520	2
R613L/R	Carbon Film	100 kohm 1/5 W	J C00001046P520	2
R614	Carbon Film	100 kohm 1/5 W	J C00001046P520	1
R615	Carbon Film	1 Mohm 1/5 W	J C00001056P520	1
R616/617	Metal Film	220 ohm 1/5 W	J C06002216P520	2
R618L/R	Carbon Film	1 Mohm 1/5 W	J C00001056P520	2
R651	Metal Film	820 ohm 1/5 W	J C06008216P520	1
R652L/R	Metal Film	470 ohm 1/5 W	J C06004716P520	2
R653	Metal Film	75 ohm 1/5 W	J C06007506P520	1

**Miscellaneous**

CP601	Wafer, 2.0mm, 5P	L101220050000 1
IC601	NJM2068M, Linear OP	J121206800020 1
SW651	Tact Sw	G180040500010 1 D
VR601/602	RK16K128000114C, RMD41	C455121402300 2
VR603	RK16K118000114H, RMM44	C455111402000 1
JACK601	RCA, 3P	G606040300000 1

**PCB6 ASSEMBLY P.C.BOARD HP/SPK SWITCH**

C701L/R	Ceramic HIK Axial	560 pF 50 V	J D005561077530	2
CN701	CNT Ass'y 6P(2P+4P)		L018065042660 1	
JACK701	HTJ064-11D(G)		G42040161330 1	
R701L/R	Metal Film	470 ohm 2 W	J C060047166520	2
R702L/R	Carbon Film	15 kohm 1/5 W	J C00001536P520	2
R703L/R	Carbon Film	22 kohm 1/5 W	J C00002236P520	2
SW701	SPLL, 19x1M071 SU690		G000040960000 1	
W701	Lug, 1P		L046241020580 1	

**PCB7 ASSEMBLY P.C.BOARD TACT SWITCH**

CP304	Wafer, 2P	L024020832310 1
SW751	Tact Sw	G180040500010 1

**PCB8 ASSEMBLY P.C.BOARD PUSH SWITCH**

CN751D	CNT PLUG, 2P	L108B2P300010 1 D,RDS
SW752D	Push Power Sw	G000041610000 1 D,RDS

Ref.No.	Description	Part No.	Q'ty	Version
<b>PCB9 ASSEMBLY P.C.BOARD ENCODER</b>				

C351/352	Ceramic T.C Axial	820 pF 50 V	J D001821067530	2
VR351	Rotary		C49004106001A	1

\* ASSEMBLY P.C.BOARD INPUT ( PCB 10, 11, 12 )

7028040887600 K

\* ASSEMBLY P.C.BOARD INPUT ( PCB 10, 11, 12 )

7028040889000 A

\* ASSEMBLY P.C.BOARD INPUT ( PCB 10, 11, 12 )

7028040890400 D

\* ASSEMBLY P.C.BOARD INPUT ( PCB 10, 11, 12 )

7028040891800 RDS

Ref.No.	Description	Part No.	Q'ty	Version
<b>PCB10 ASSEMBLY P.C.BOARD INPUT</b>				

Capacitors				
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C401~410LD/R	Ceramic T.C Axial	100 pF 50 V	J D001101077530	20 D,RDS
C411	Elect GE	47 uF 25 V	M D040470084100	1
C412	Elect GE	1 uF 50 V	M D040010087100	1
C414	Elect GE	47 uF 25 V	M D040470084100	1</

Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version	Ref.No.	Description	Part No.	Q'ty	Version				
C503L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	D501~509	1N4148M, Switching	K000414801520	9		R560L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2		
C504L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2	D510	UZ5.1BSB ,Zener	K06005R114520	1		R561L/R	Chip Thick	1.5 kohm	1/10 W	J C200015260200	2		
C505L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2					R562L/R	Chip Thick	22 kohm	1/10 W	J C200022360200	2			
C506L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2					R563L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2			
C507	Ceramic Chip T.C	100 pF	50 V	D010101167210	1	IC501	LC7822, Analog	J080782200000	1		R564L/R	Chip Thick	820 kohm	1/10 W	J C200082460200	2		
C508L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2	IC502	MC14053, Analog	J080140530010	1		R565L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2		
C509L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	IC503~505	LC7536, Elect VR	J084753600010	3		R566	Chip Thick	1 kohm	1/10 W	J C200010260200	1		
C510L/R	Elect GE	0.47 uF	50 V	M D0404R7087100	2	IC506~508	NJM2068DD, Linear OP	J121206800000	3		R567L/R	Chip Thick	1 kohm	1/10 W	J C200010260200	2		
C511L/R	Ceramic Chip T.C	22 pF	50 V	D010220167210	2	IC509/510	NJM4580L, Linear OP	J121458000030	2		R568L/R	Chip Thick	4.7 kohm	1/10 W	J C200047260200	2		
C512L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2	IC511/512	NJM2068DD, Linear OP	J121206800000	2		R569L/R	Metal Film	2.2 kohm	1/5 W	J C06002226P520	2		
C513L/R	Ceramic Chip T.C	0.1 uF	50 V	D011104597210	2	IC513	NJM4580L, Linear OP	J121458000030	1		R570~573	Carbon Film	15 kohm	1/5 W	J C00001536P520	4		
C514L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2	IC514	NJM2068DD, Linear OP	J121206800000	1		R574	Metal Film	2.2 kohm	1/5 W	J C06002226P520	1		
C516	Elect GE	47 uF	25 V	M D040470084100	1	IC515	NJM4580L, Linear OP	J121458000030	1		R575	Carbon Film	10 kohm	1/5 W	J C00001036P520	1		
C517L/R	Elect GE	10 uF	50 V	M D040100087100	2	IC516/517	NJM2068DD, Linear OP	J121206800000	2		R576	Metal Film	1 kohm	1/5 W	J C06001026P520	1		
C518LD/RD	Ceramic T.C Axial	100 pF	50 V	J D001101077530	2	IC518/519	NJM4580L, Linear OP	J121458000030	2		R577	Metal Film	1 kohm	1/5 W	J C06001026P520	1		
C519	Elect GE	47 uF	25 V	M D040470084100	1					R578	Carbon Film	10 kohm	1/5 W	J C06004726P520	1			
C520	Elect GE	1 uF	50 V	M D040010087100	1					R579	Metal Film	4.7 kohm	1/5 W	J C06004726P520	1			
C521~523	Elect GE	47 uF	25 V	M D040470084100	3					R580L/R	Metal Film	470 ohm	1/5 W	J C06004716P520	2			
C524	Ceramic Chip T.C	100 pF	50 V	D010101167210	1	Q501~504	DTA114YS, PNP	J601114YS0050	4		R581L/R	Metal Film	47 ohm	1/5 W	J C06004706P520	2		
C525	Elect GE	2.2 uF	50 V	M D0402R2087100	1	Q505L/R	KTD1302, NPN	J5031302B0050	2		R582L/R	Chip Thick	560 kohm	1/10 W	J C200056160200	2		
C526	Film Polyester	0.1 uF	63 V	J D020104068050	1	Q506/507	KTD1302, NPN	J5031302B0050	2		R583	Chip Thick	5.6 kohm	1/10 W	J C200056260200	1		
C527	Film Polyester	0.1 uF	63 V	J D020104068050	1	Q508L/R	KTD1302, NPN	J5031302B0050	2		R584	Chip Thick	3.9 kohm	1/10 W	J C200039260200	1		
C528	Ceramic Chip T.C	100 pF	50 V	D010101167210	1	Q509L/R	2SK117Y	J5441170Y0050	2		R585	Metal Film	47 ohm	1/5 W	J C06004706P520	1		
C529	Elect GE	2.2 uF	50 V	M D0402R2087100	1	Q510L/R	2SK117Y	J5441170Y0050	2		R586	Chip Thick	33 kohm	1/10 W	J C200033360200	1		
C530/531	Elect GE	4.7 uF	50 V	M D0404R7087100	2					R587	Metal Film	4.7 kohm	1/5 W	J C06004726P520	1			
C532	Ceramic Chip T.C	100 pF	50 V	D010101167210	1					R588	Chip Thick	1 kohm	1/10 W	J C200010260200	1			
C533	Ceramic Chip T.C	0.1 uF	50 V	D011104597210	1	R500	Chip Thick	820 kohm	1/10 W	J C200082460200	1		R589L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2
C534	Elect GE	0.47 uF	50 V	M D0404R7087100	1	R501L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2		R590	Chip Thick	4.7 kohm	1/10 W	J C200047260200	1
C535	Ceramic Chip T.C	22 pF	50 V	D010220167210	1	R502L/R	Chip Thick	22 kohm	1/10 W	J C200022360200	2		R591	Metal Film	47 ohm	1/5 W	J C06004706P520	1
C536/537	Elect GE	4.7 uF	50 V	M D0404R7087100	2	R503L/R	Chip Thick	10 kohm	1/10 W	J C200010360200	2		R592L/R	Chip Thick	3.9 kohm	1/10 W	J C200039260200	2
C538/539	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	R504L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2		R593	Chip Thick	820 kohm	1/10 W	J C200082460200	1
C540	Elect GE	10 uF	50 V	M D040100087100	1													
C541D/542	Ceramic T.C Axial	100 pF	50 V	J D001101077530	2	R505L/R	Chip Thick	10 kohm	1/10 W	J C200010360200	2							
C543LD/RD	Ceramic T.C Axial	100 pF	50 V	J D001101077530	2	R506L/R	Chip Thick	220 kohm	1/10 W	J C200022460200	2							
C544L/R	Film Polyester	0.1 uF	63 V	J D020104068050	2	R507L/R	Chip Thick	56 kohm	1/10 W	J C200056360200	2							
C545L/R	Film Polyester	0.1 uF	63 V	J D020104068050	2	R508L/R	Chip Thick	4.7 kohm	1/10 W	J C200047260200	2							
C546L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	R510	Chip Thick	100 kohm	1/10 W	J C200010460200	1							
C547L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2	R511L/R	Chip Thick	470 ohm	1/10 W	J C200047160200	2							
C548L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2	R512/513	Metal Film	47 ohm	1/5 W	J C06004706P520	2							
C549L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2	R514L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2							
C550L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	R515L/R	Chip Thick	820 kohm	1/10 W	J C200082460200	2							
C551L/R	Elect GE	2.2 uF	50 V	M D0402R2087100	2	R516L/R	Chip Thick	100 kohm	1/10 W	J C200010460200	2							
C552L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	R517/518	Metal Film	1 kohm	1/5 W	J C06001026P520	2							
C553L/R	Ceramic Chip T.C	0.1 uF	50 V	D011104597210	2	R519L/R	Chip Thick	1 kohm	1/10 W	J C200010260200	2							
C554L/R	Elect GE	0.47 uF	50 V	M D0404R7087100	2	R520L/R	Metal Film	2.2 kohm	1/5 W	J C06002226P520	2							
C555L/R	Ceramic Chip T.C	22 pF	50 V	D010220167210	2	R521	Carbon Film	100 kohm	1/5 W	J C00001046P520	1							
C556L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2	R522	Metal Film	47 ohm	1/5 W	J C06004706P520	1							
C557L/R	Ceramic Chip T.C	100 pF	50 V	D010101167210	2	R523	Chip Thick	100 kohm	1/10 W	J C200010460200	1							
C558L/R	Elect GE	4.7 uF	50 V	M D0404R7087100	2	R524	Chip Thick	10 kohm	1/10 W	J C200010360200	1							
C560L/R	Elect GE	10 uF	50 V	M D040100087100	2	R525	Chip Thick	22 kohm	1/10 W	J C200022360200	1							
C561LD/RD	Ceramic T.C Axial	100 pF	50 V	J D001101077530	2	R526	Chip Thick	100 kohm	1/10 W	J C200010460200	1							
C562	Elect GE	47 uF	25 V	M D040470084100	1	R527	Chip Thick	1.5 kohm	1/10 W	J C200015260200	1							
C563	Ceramic Chip T.C	100 pF	50 V	D010101167210	1	R528	Chip Thick	22 kohm	1/10 W	J C200022360200	1							
C564	Ceramic H/K Axial	0.1 uF	50 V	Z D005104097530	1	R529/530	Chip Thick	100 kohm	1/10 W	J C200010460200	2							
C565L/R	Ceramic Chip T.C	1000 pF	50 V	CH D010102167210	2	R531L/R	Chip Thick	1 kohm	1/10 W	J C200010260200	2							
C566/567	Elect GE	2.2 uF	50 V	M D0402R2087100	2	R532	Chip Thick	1 kohm	1/10 W	J C200010260200	1							
C568/569	Film Polyester	0.027 uF	63 V	J D020273068050	2	R533	Metal Film	47 ohm	1/5 W	J C06004706P520	1							
C570	Elect GE	2.2 uF	50 V	M D0402R2087100	1</													

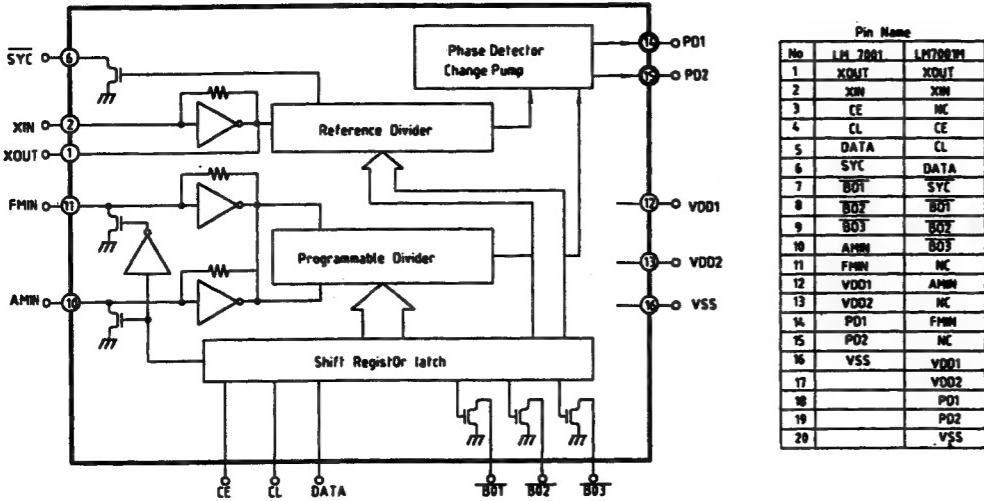
Ref.No.	Description	Part No.	Q'ty	Version
C853	Elect GE	47 uF	25 V	M D040470084100 1
C854	Ceramic Chip T.C	0.01 uF	50 V	J D011103177210 1
C854C/W	Elect GE	10 uF	50 V	M D040100087100 2
C855	Elect GE	100 uF	10 V	M D040101082100 1
C857	Ceramic Chip T.C	22 pF	50 V	CH D010220167210 1
C858	Ceramic Chip T.C	0.01 uF	50 V	J D011103177210 1
C859/860	Ceramic Chip T.C	0.1 uF	50 V	Z D011104177210 2
C860SL/SR	Ceramic Chip T.C	0.0015 uF	50 V	CH D011152177210 2
C861/862	Elect GE	3.3 uF	50 V	M D0403R3087100 2
C863L/R	Ceramic Chip T.C	0.0015 uF	50 V	B D011152177210 2
C864	Elect GE	47 uF	25 V	M D040470084100 1
C865C/W	Ceramic Chip T.C	0.0015 uF	50 V	B D011152177210 2
C866SL/SR	Elect GE	10 uF	50 V	M D040100087100 2
C867	Elect GE	47 uF	25 V	M D040470084100 1
C868SL/SR	Ceramic Chip T.C	0.0015 uF	50 V	B D011152177210 2
C869~875	Ceramic Chip T.C	0.1 uF	50 V	Z D011104177210 7
C876	Elect GE	1 uF	50 V	M D040100087100 1
C877L/R/C/W	Ceramic Chip T.C	0.0047 uF	50 V	B D011472177210 4
C877SL/SR	Ceramic Chip T.C	0.0047 uF	50 V	B D011472177210 2
C880/881	Elect GE	10 uF	35 V	M D040100085100 2
C882~891	Ceramic Chip T.C	0.1 uF	50 V	Z D011104177210 10
C892	Elect BP	47 uF	10 V	M D042470082110 1
C893	Elect GE	10 uF	50 V	M D040100087100 1
C894~896	Ceramic Chip T.C	0.01 uF	50 V	J D011103177210 3
C897	Elect GE	1 uF	50 V	M D040100087100 1
<b>Coils</b>				
L801/802	Filter Inductor, 68 uH	D330680001020	2	
L803~805	BEAD, Chip-Type	7611010000000	3	
<b>Connectors</b>				
CN801	B'D to B'D Wafer, 2.0mm, 11P	L101352371110	1	
CN802	B'D to B'D Wafer, 2.0mm, 14P	L101352371410	1	
<b>Diodes</b>				
D801~805	RLS4148, Switching	K009573221000	5	
VC101	KV1851, Varactor	K080185100010	1	
<b>Integrated Circuits</b>				
IC801	MC14577BP, Monitor	J170145770000	1	
IC802	NJM2068M, Linear OP	J121206800020	1	
IC803	PM4007A, Analog	J080400700010		
IC804	KM68257CJ, Memory RAM	J001682510010	1	
IC805	NJM2068M, Linear OP	J121206800020	1	
IC806	CS4226, Analog	J08042260010	1	
IC807	MC56009F, Analog	J080560098110	1	
IC808	74HC76, Logic	J040747600040	1	
IC809	74HCU04, Logic	J040740400200	1	
IC810	uPD78044	J020828521220	1	
IC811/812	HY534256, Memory RAM	J001534256000	2	
IC813	74HC04, Logic	J040740400210	1	
IC814~816	NJM2068M, Linear OP	J121206800020	3	
<b>Transistors</b>				
Q801/802	2SC1740S, NPN	J5021740S0010	2	
Q803/804	2SA933S, PNP	J5000933S0050	2	
Q805/806	2SC1740S, NPN	J5021740S0010	2	
Q807	DTC114TS, PNP	J600114TS0050	1	
Q808	DTA114YS, PNP	J601114YS0050	1	
Q809L/R	DTC323TK, NPN	J502323000050	2	
Q810C/W	DTC323TK, NPN	J502323000050	2	
Q811SL/SR	DTC323TK, NPN	J502323000050	2	
Q812	DTC114YS, NPN	J6020114Y0050	1	
<b>Resistors</b>				
R750	Chip Thick	100 kohm	1/10 W	J C200010460200 1
R750C/W	Chip Thick	100 kohm	1/10 W	J C200010460200 2
R751	Chip Thick	220 kohm	1/10 W	J C200022460200 1
R752L/R	Chip Thick	100 ohm	1/10 W	J C200010160200 2
R753L/R	Chip Thick	3.3 kohm	1/10 W	J C200033260200 2
R754	Chip Thick	3.3 kohm	1/10 W	J C200033260200 1
R754L/R	Chip Thick	100 kohm	1/10 W	J C200010460200 2
R755L/R	Chip Thick	1 kohm	1/10 W	J C200010260200 2
R756/757	Chip Thick	15 ohm	1/10 W	J C200015060200 2
R758C/W	Chip Thick	100 ohm	1/10 W	J C200010160200 2
R759C/W	Chip Thick	3.3 kohm	1/10 W	J C200033260200 2
R761C/W	Chip Thick	1 kohm	1/10 W	J C200010260200 2
R762L/R/C/W	Chip Thick	3.3 kohm	1/10 W	J C200033260200 4

Ref.No.	Description	Part No.	Q'ty	Version
R763C/W	Chip Thick	3.3 kohm	1/10 W	J C200033260200 2
R764SL/SR	Chip Thick	3.3 kohm	1/10 W	J C200033260200 2
R766SL/SR	Chip Thick	100 ohm	1/10 W	J C200010160200 2
R767SL/SR	Chip Thick	3.3 kohm	1/10 W	J C200033260200 2
R768SL/SR	Chip Thick	100 kohm	1/10 W	J C200010460200 2
R769SL/SR	Chip Thick	1 kohm	1/10 W	J C200010260200 2
R770L/R/C/W	Chip Thick	2.2 kohm	1/10 W	J C200022260200 4
R771C/W	Chip Thick	2.2 kohm	1/10 W	J C200022260200 2
R772SL/SR	Chip Thick	2.2 kohm	1/10 W	J C200022260200 2
R774	Chip Thick	470 ohm	1/10 W	J C200047160200 1
R775	Chip Thick	4.7 kohm	1/10 W	J C200047260200 1
R776	Chip Thick	470 ohm	1/10 W	J C200047160200 1
R777	Chip Thick	18 kohm	1/10 W	J C200018360200 1
R778~780	Chip Thick	100 kohm	1/10 W	J C200010460200 3
R781	Carbon Film	2.2 ohm	1/4 W	J C0002R2063520 1
R782L/R/C/W	Chip Thick	100 kohm	1/10 W	J C200010460200 4
R782SL/SR	Chip Thick	100 kohm	1/10 W	J C200010460200 2
R783L/R/C/W	Chip Thick	2.2 kohm	1/10 W	J C200022260200 4
R784C/W	Chip Thick	2.2 kohm	1/10 W	J C200022260200 2
R785SL/SR	Chip Thick	2.2 kohm	1/10 W	J C200022260200 2
R786/787	Chip Thick	4.7 kohm	1/10 W	J C200047260200 2
R788L/R/C/W	Chip Thick	470 ohm	1/10 W	J C200047160200 4
789C/W	Chip Thick	470 ohm	1/10 W	J C200047160200 2
R790SL/SR	Chip Thick	470 ohm	1/10 W	J C200047160200 2
R791	Chip Thick	470 ohm	1/10 W	J C200047160200 1
R792/793	Chip Thick	22 kohm	1/10 W	J C200022360200 2
R801	Chip Thick	100 ohm	1/10 W	J C200010160200 1
R802	Metal Film	560 ohm	1/5 W	J C06005616P520 1
R803~805	Chip Thick	1 kohm	1/10 W	J C200010260200 3
R806	Chip Thick	4.7 kohm	1/10 W	J C200047260200 1
R807	Chip Thick	150 ohm	1/10 W	J C200015160200 1
R808	Chip Thick	2.2 kohm	1/10 W	J C200022260200 1
R809~812	Chip Thick	1 kohm	1/10 W	J C200010260200 4
R813	Chip Thick	10 kohm	1/10 W	J C200010360200 1
R814	Chip Thick	1 kohm	1/10 W	J C200010260200 1
R815	Chip Thick	4.7 kohm	1/10 W	J C200047260200 1
R816	Chip Thick	1 kohm	1/10 W	J C200010260200 1
R817	Chip Thick	5.1 kohm	1/10 W	J C200051260200 1
R818/819	Chip Thick	1 kohm	1/10 W	J C200010260200 2
R820	Chip Thick	1.8 kohm	1/10 W	J C200018260200 1
R821/822	Chip Thick	10 kohm	1/10 W	J C200010360200 2
R823	Chip Thick	4.7 kohm	1/10 W	J C200047260200 1
R824	Chip Thick	100 kohm	1/10 W	J C200010460200 1
R825	Chip Thick	4.7 kohm	1/10 W	J C200047260200 1
R826	Chip Thick	3.9 kohm	1/10 W	J C200039260200 1
R827	Chip Thick	22 kohm	1/10 W	J C200022360200 1
R828	Chip Thick	8.2 kohm	1/10 W	J C2000082260200 1
R829	Chip Thick	68 kohm	1/10 W	J C200068360200 1
R830	Chip Thick	27 kohm	1/10 W	J C200027360200 1

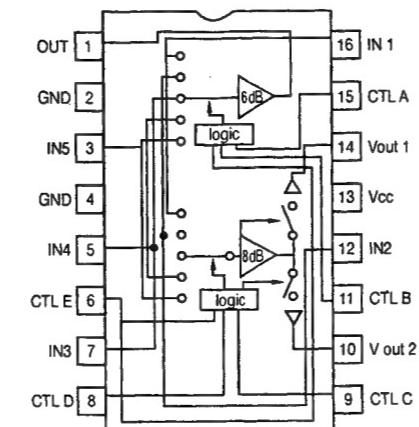
## IC FUNCTIONAL BLOCK DIAGRAM

Model No. : R-925R/R-925RDS

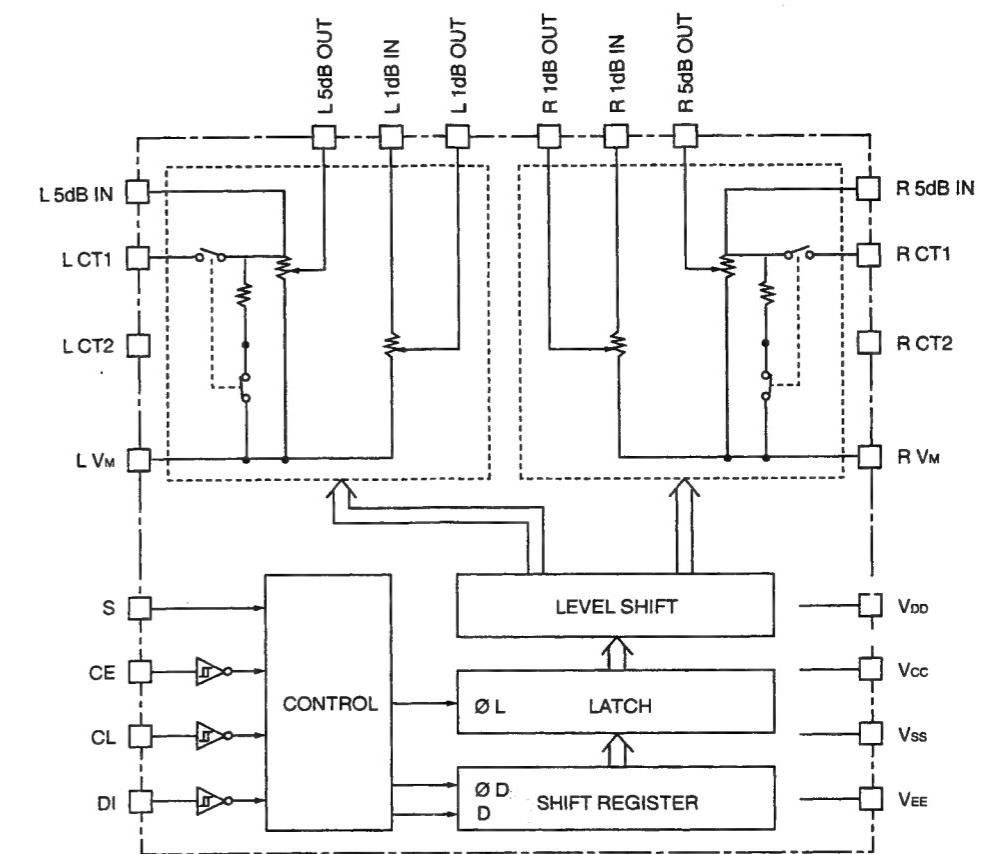
**IC 1 : LM7001M**



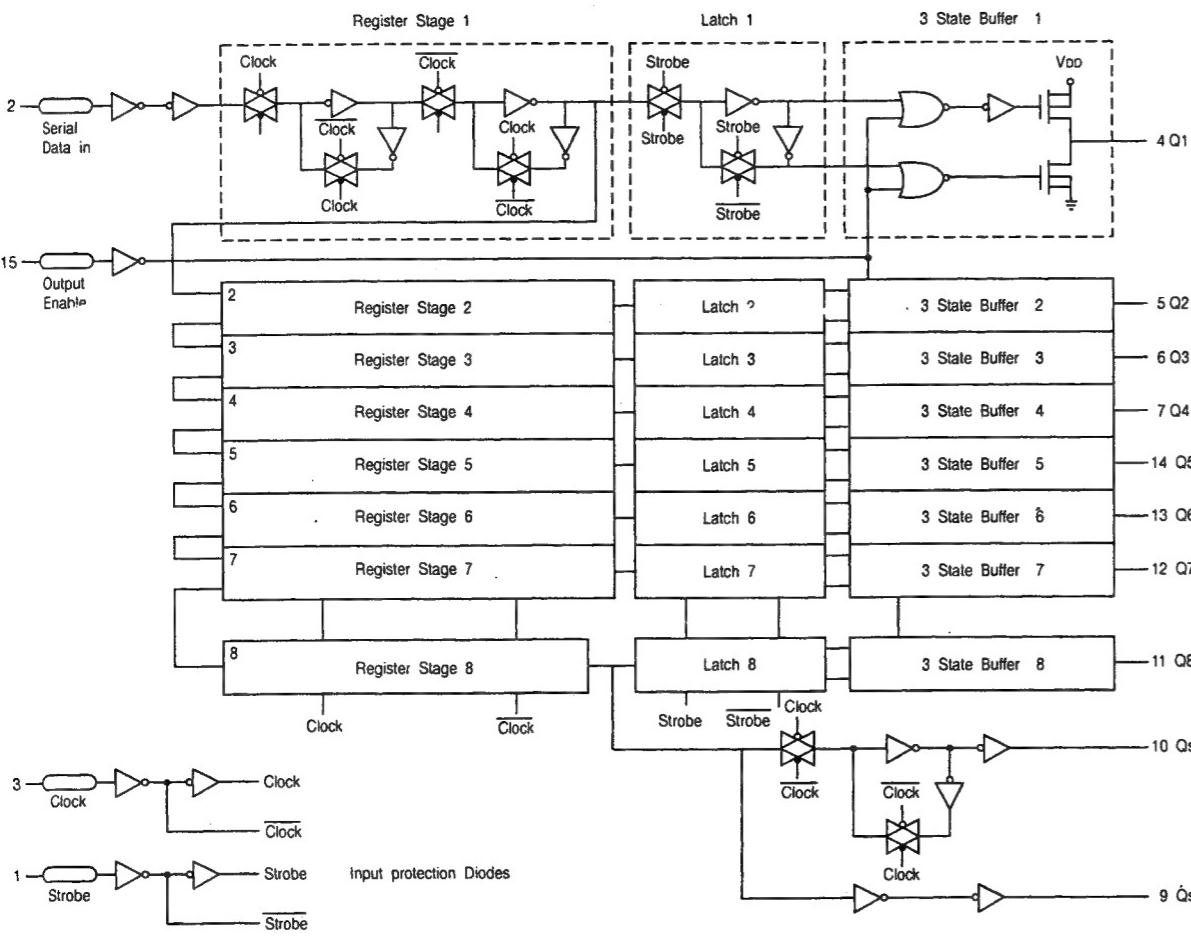
**IC 451 : BA7625**



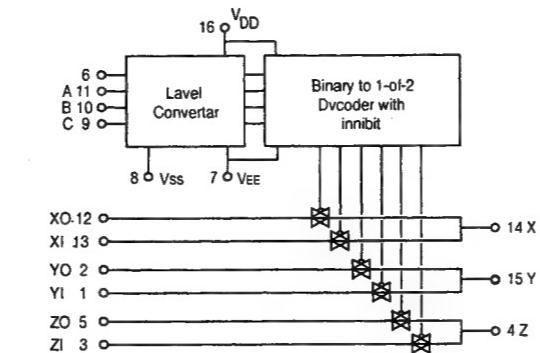
**IC 503, 504, 505 : LC7536**



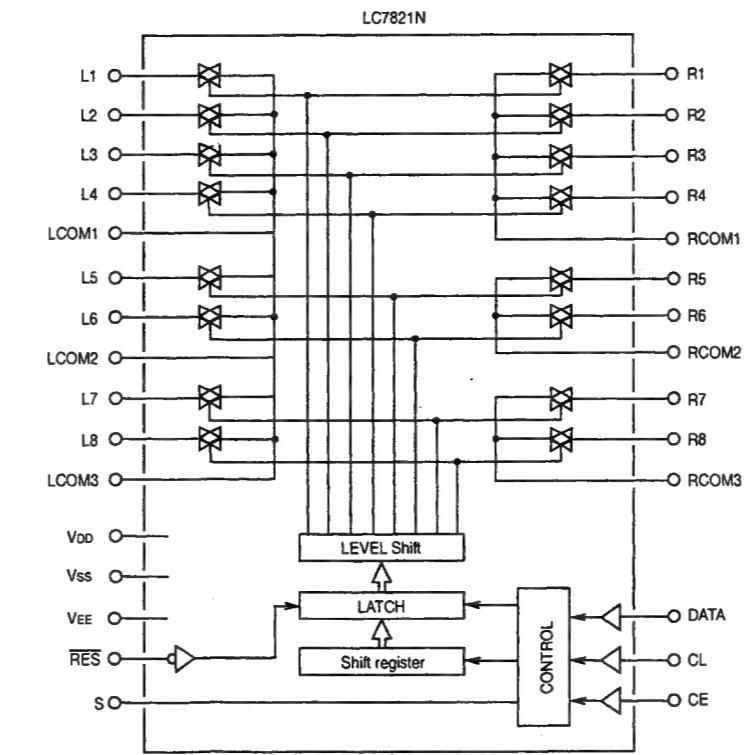
**IC 453 : MC14094B**



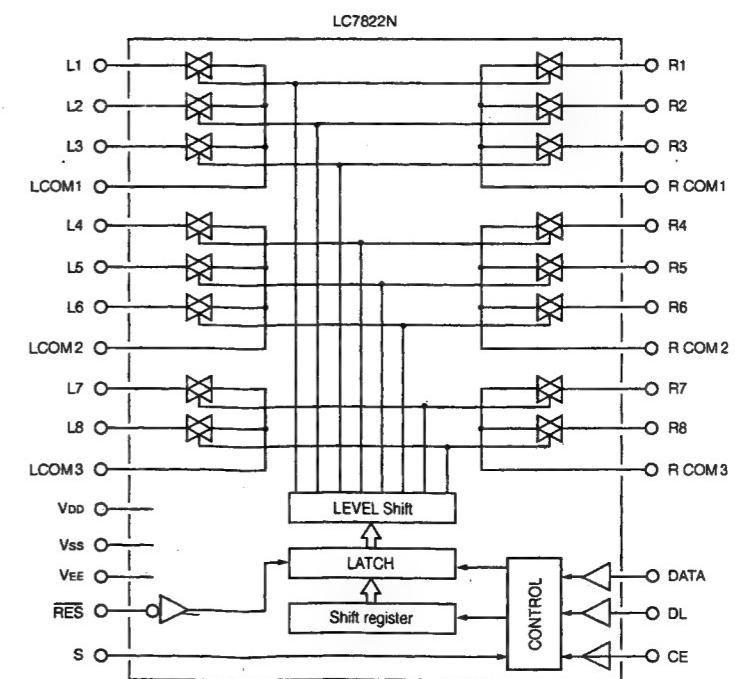
**IC 452, 502 : MC14053B**

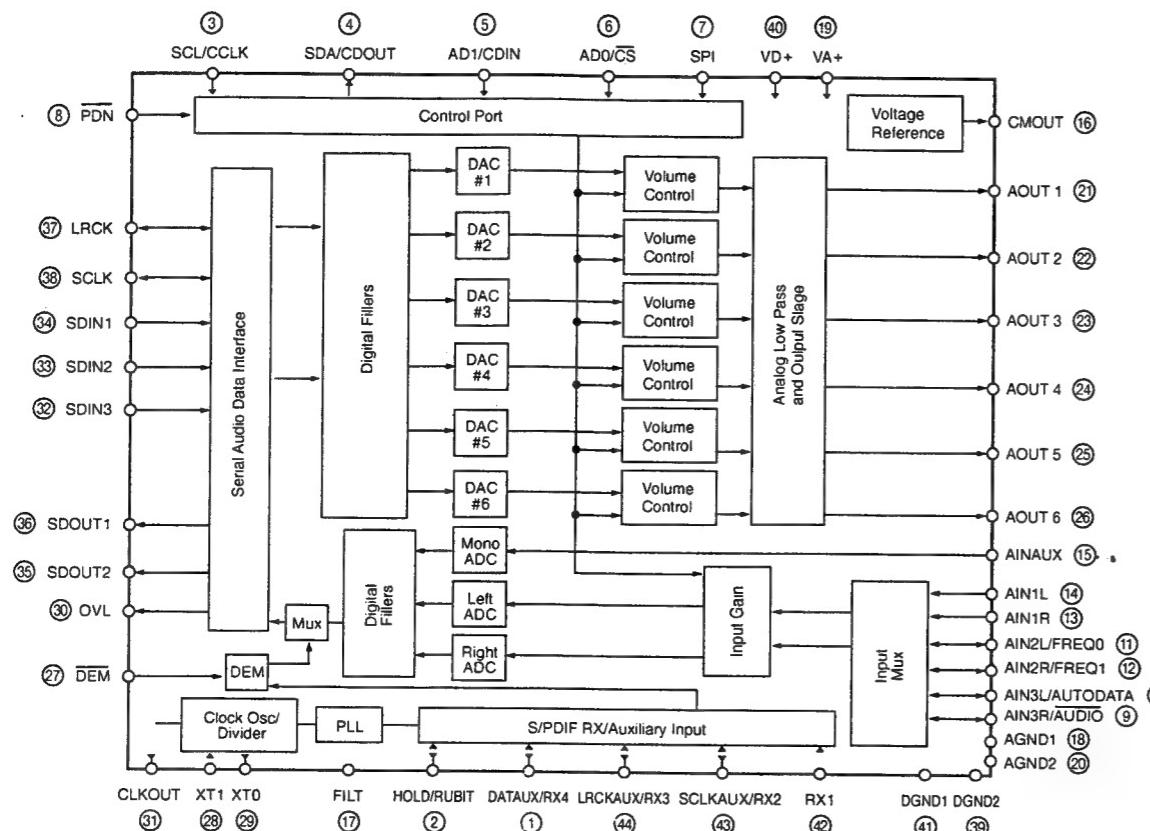
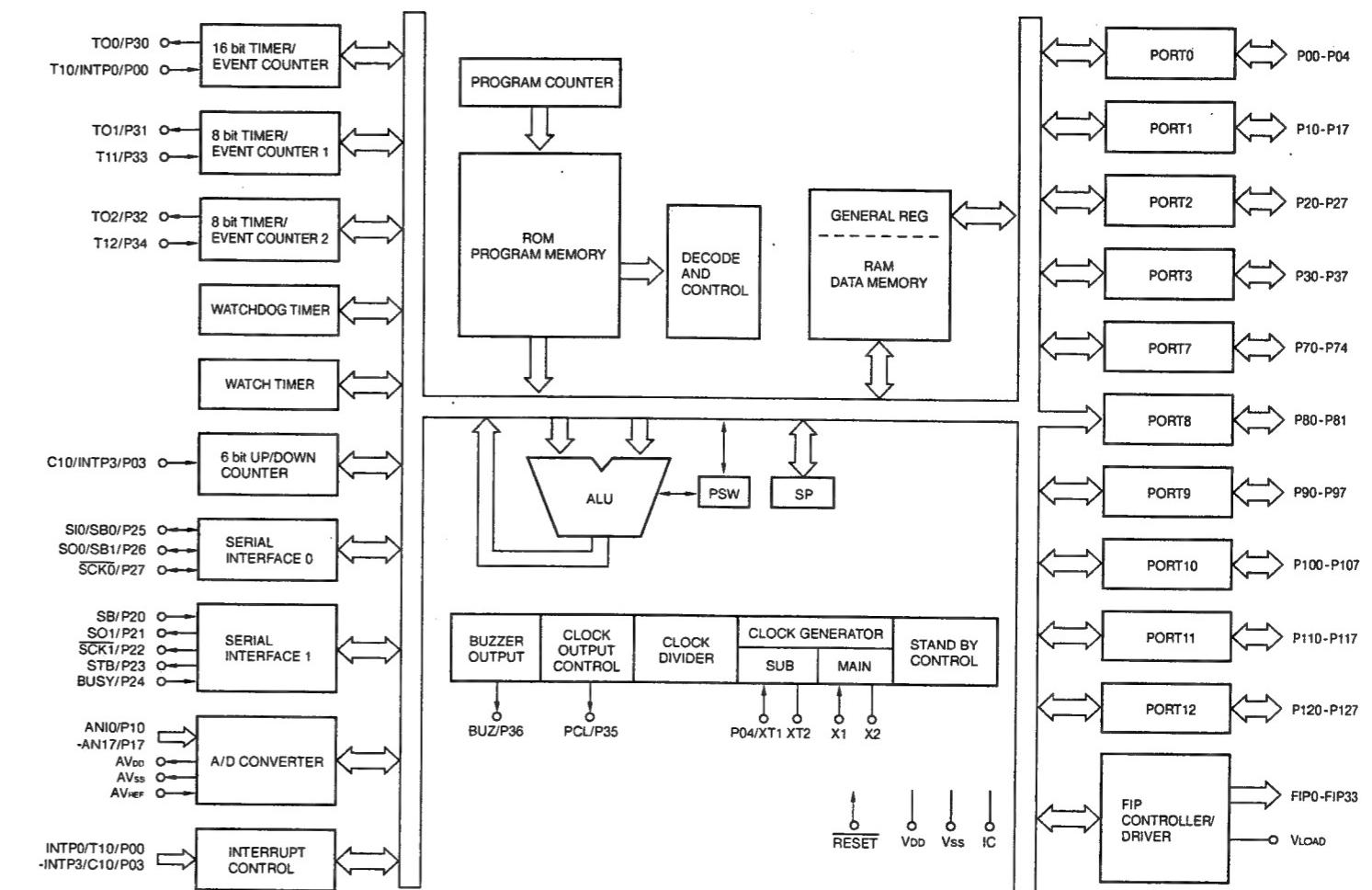
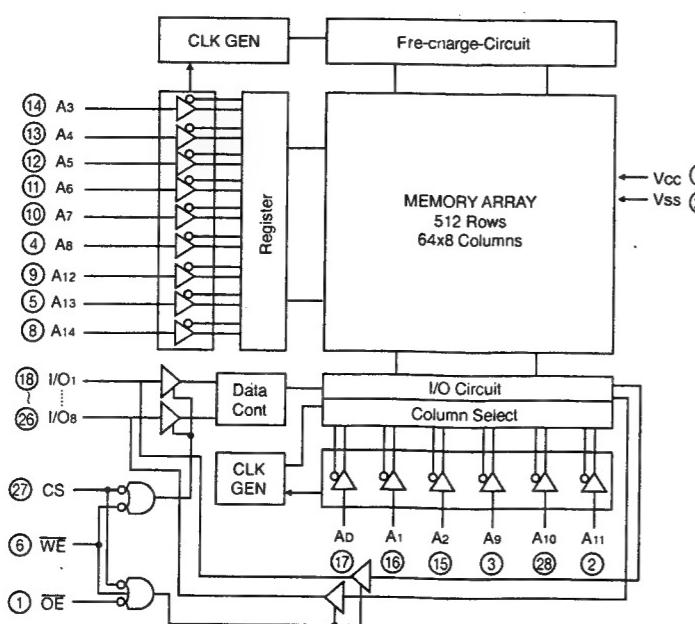
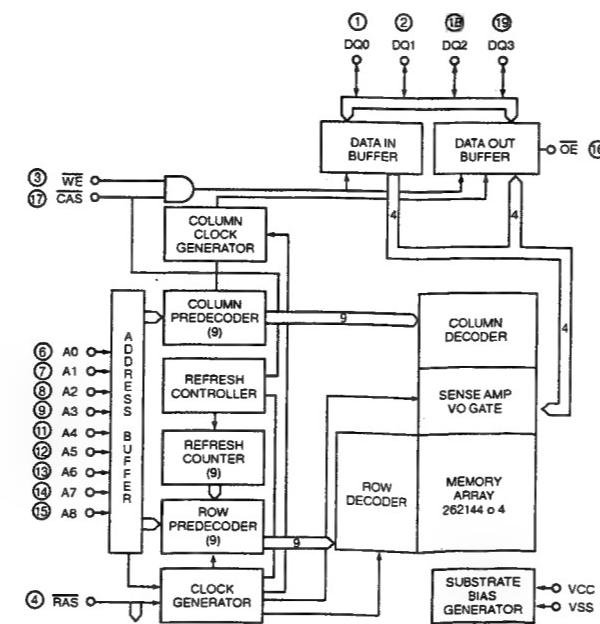
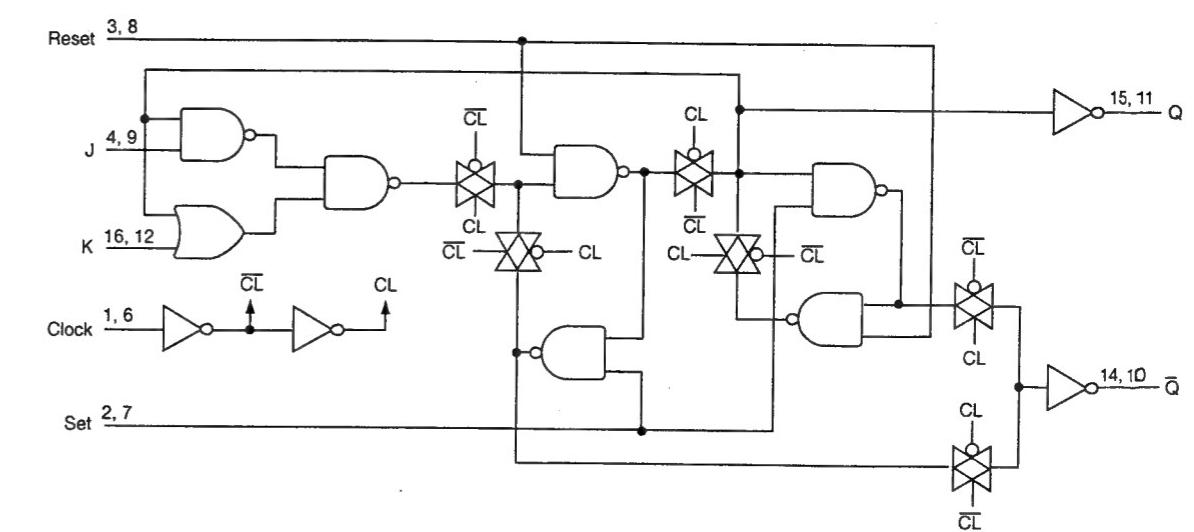


**IC 401, 450 : LC782IN**



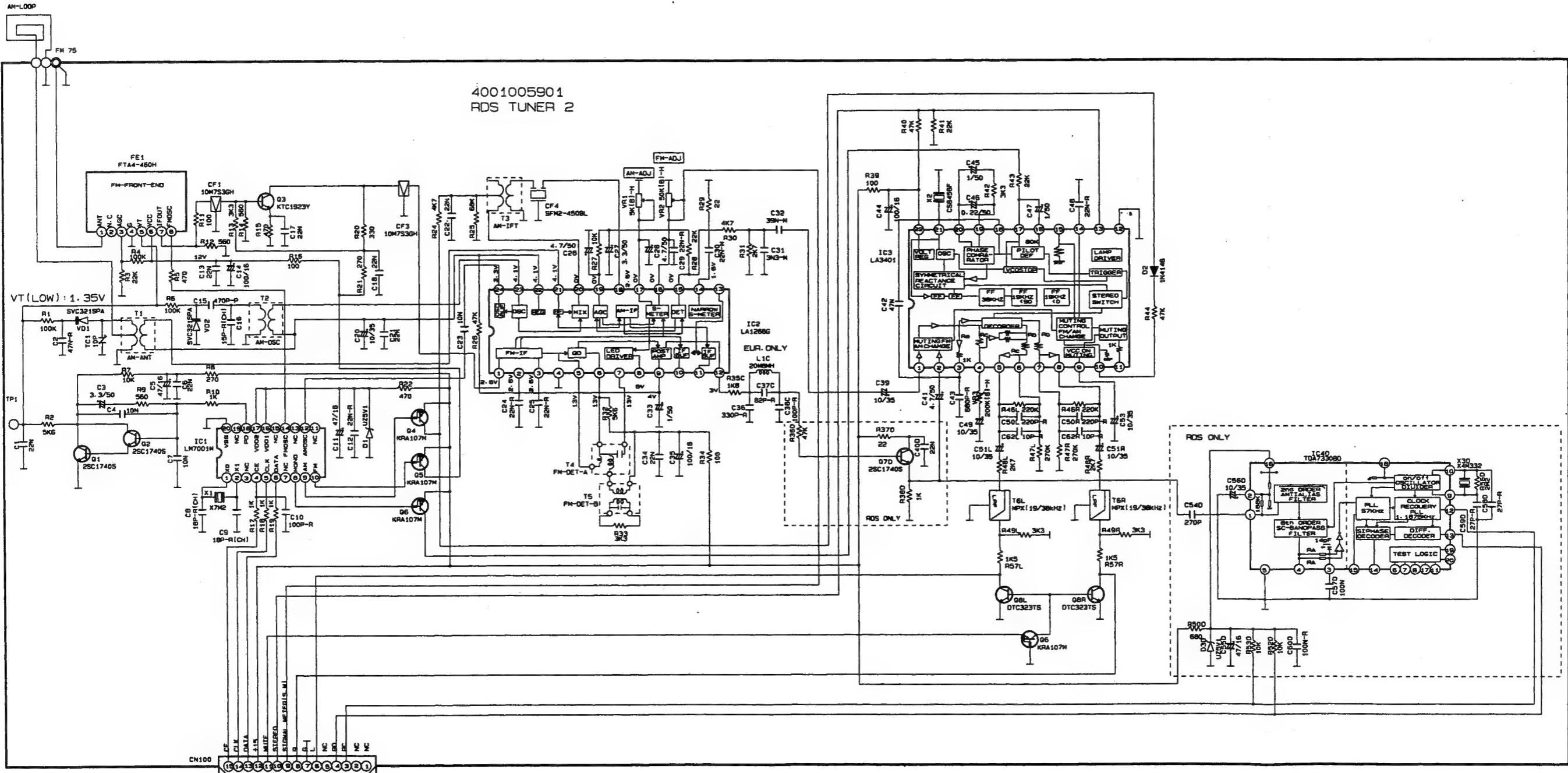
**IC 501 : LC7822N**



**IC 806 : CS 4226****IC 810 : UPD78044A****IC 804 : KM68257C****IC 811, 812 : HY534256A****IC 808 : MC74HC76**

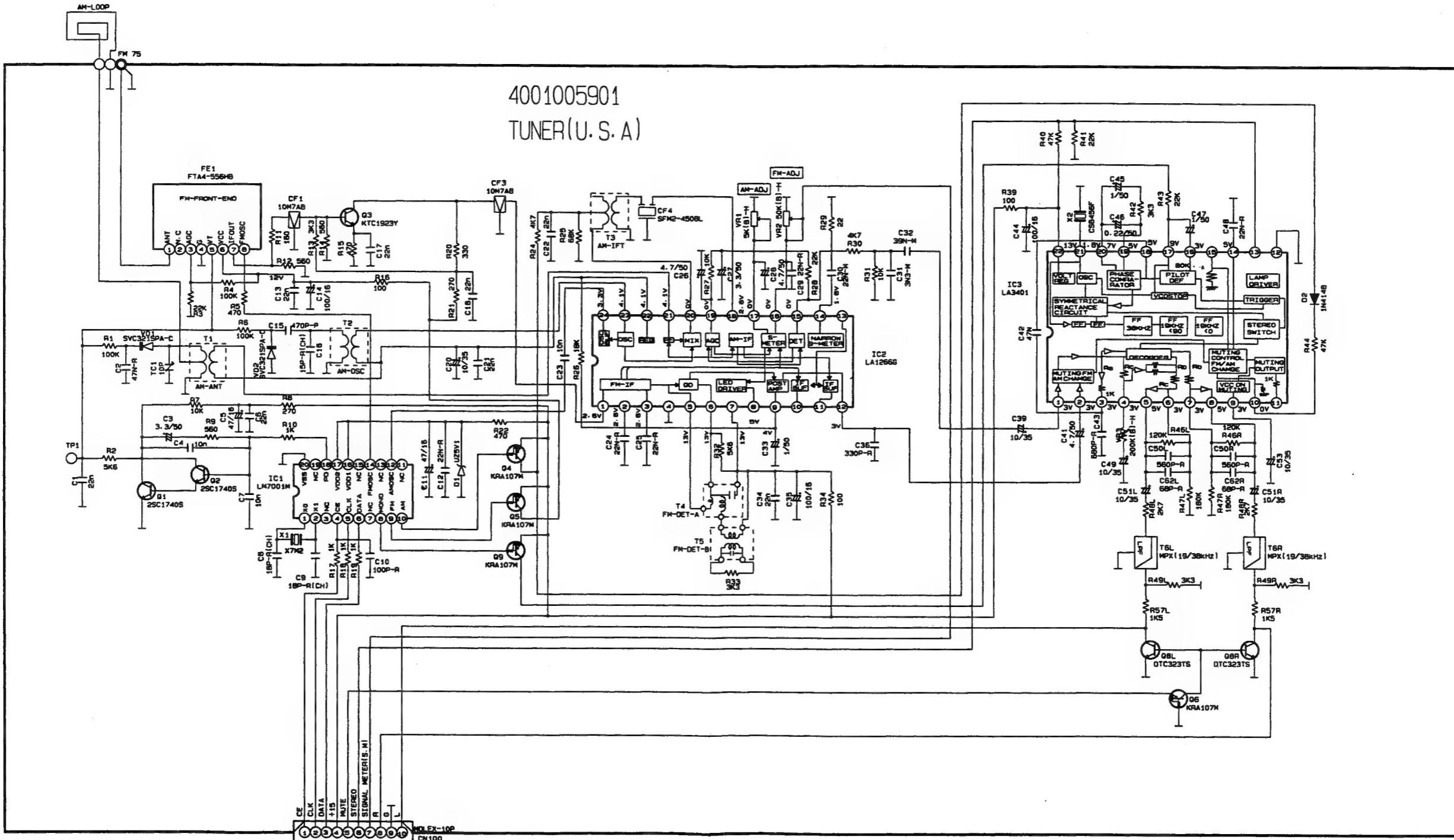
## **SCHEMATIC DIAGRAM (I)**

**Model No. : R-925R/R-925RDS**



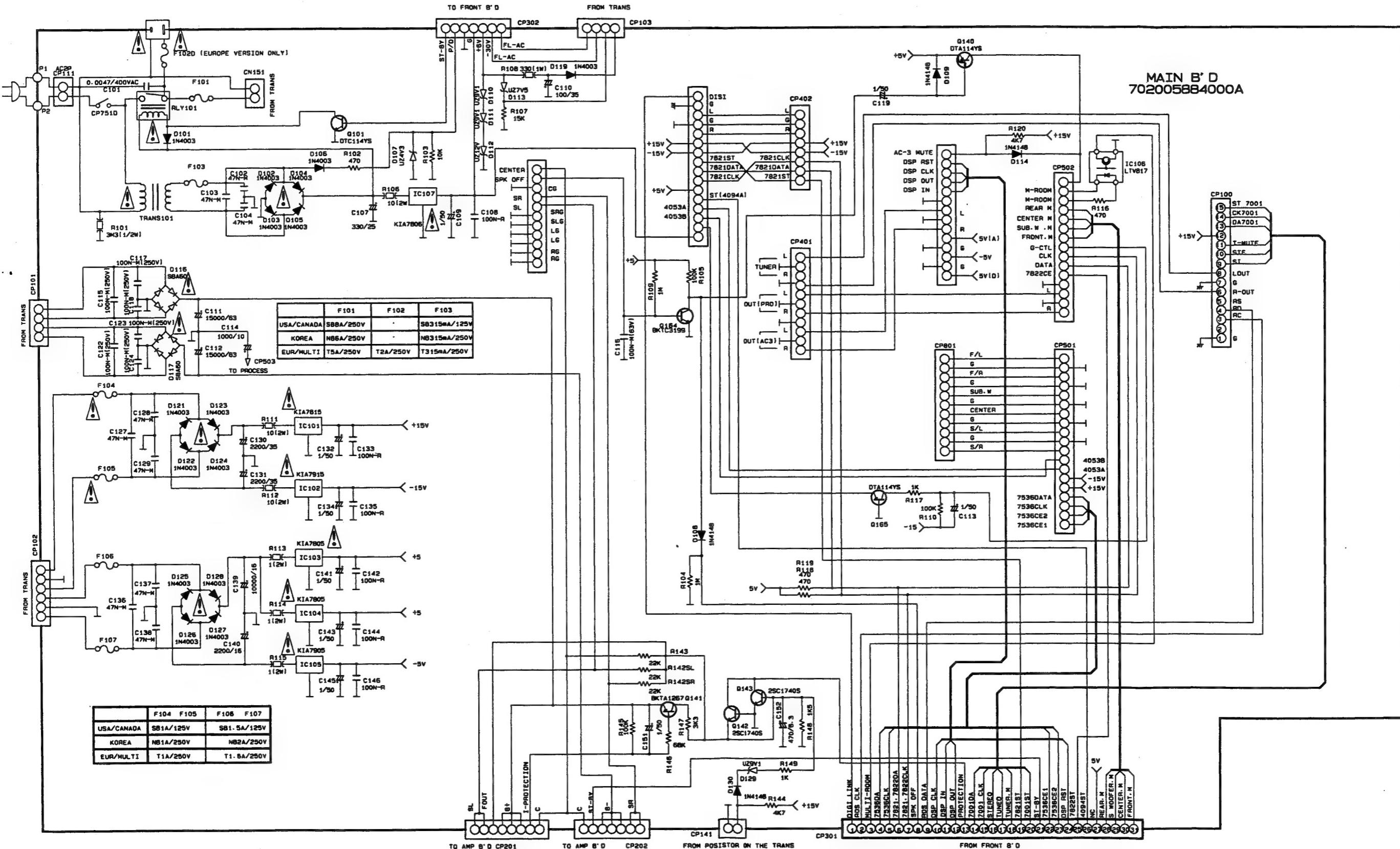
## **SCHEMATIC DIAGRAM (II)**

**Model No. : R-925R/R-925RDS**



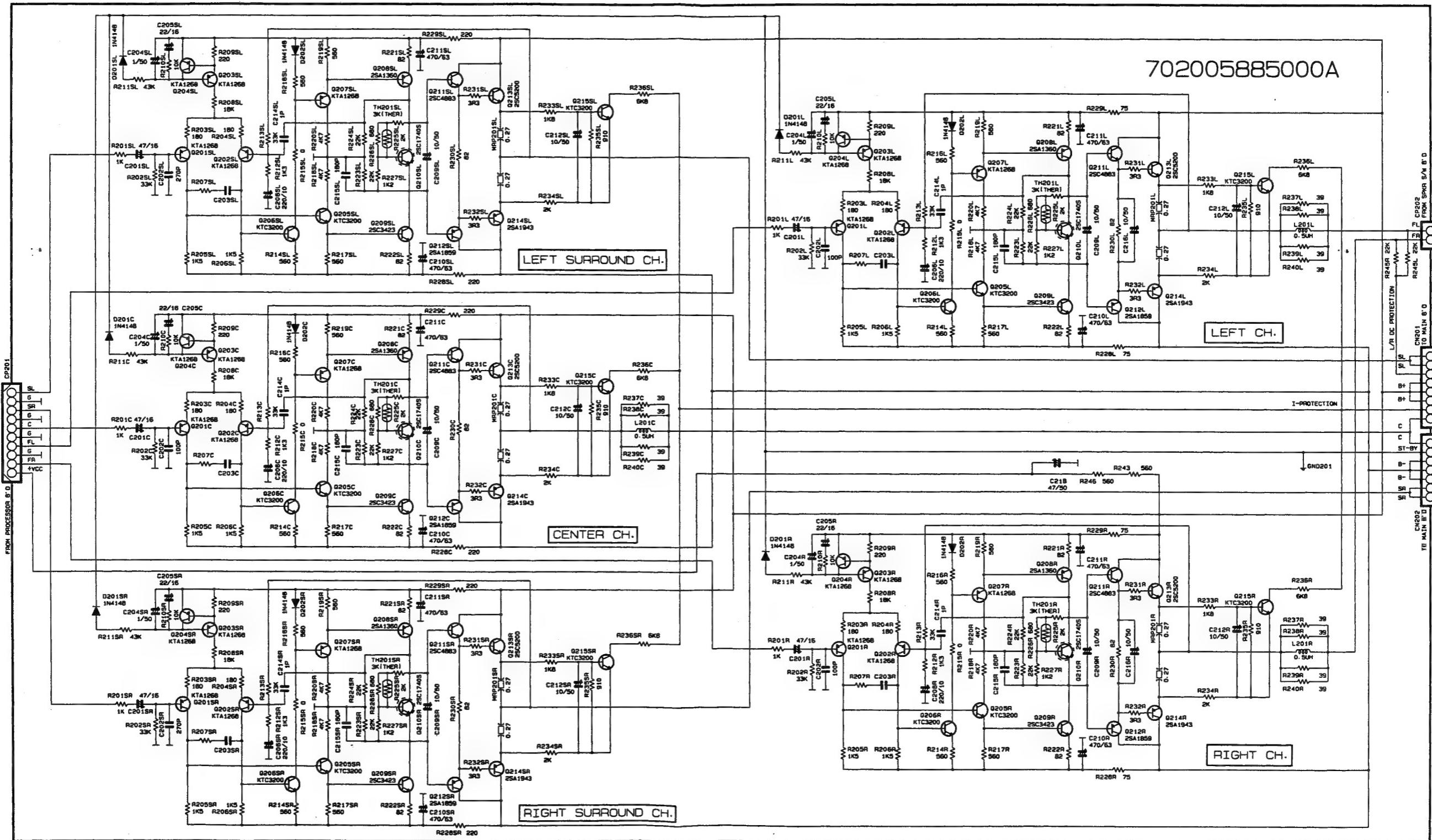
### SCHEMATIC DIAGRAM (III)

Model No. : R-925R/R-925RDS



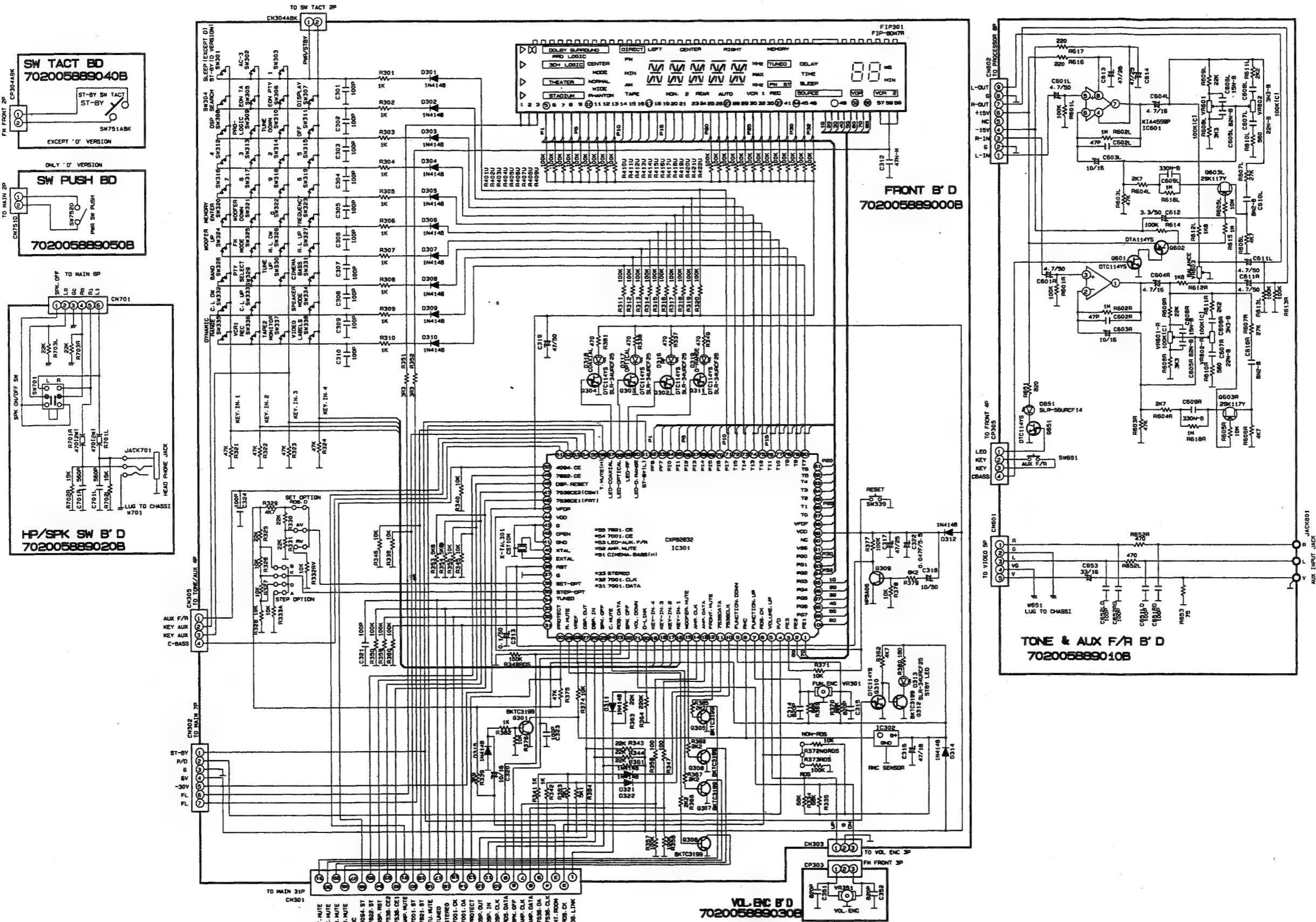
## **SCHEMATIC DIAGRAM (IV)**

**Model No. : R-925R/R-925RDS**



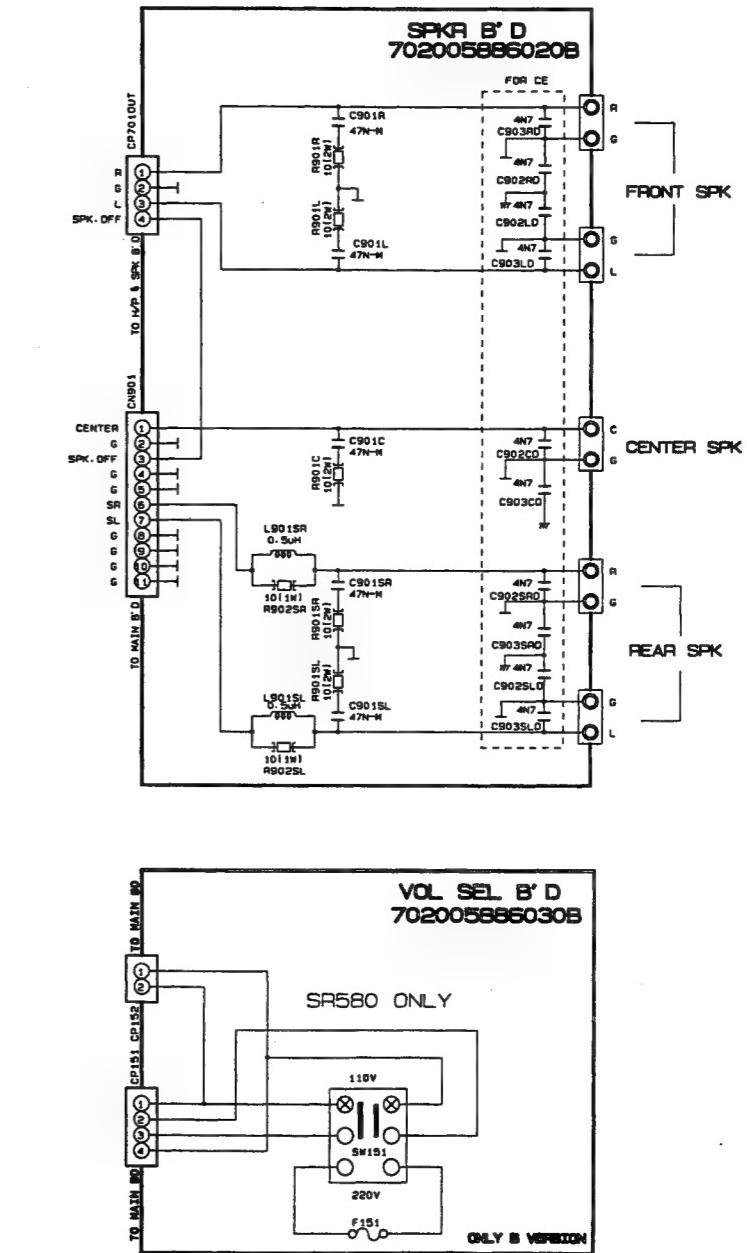
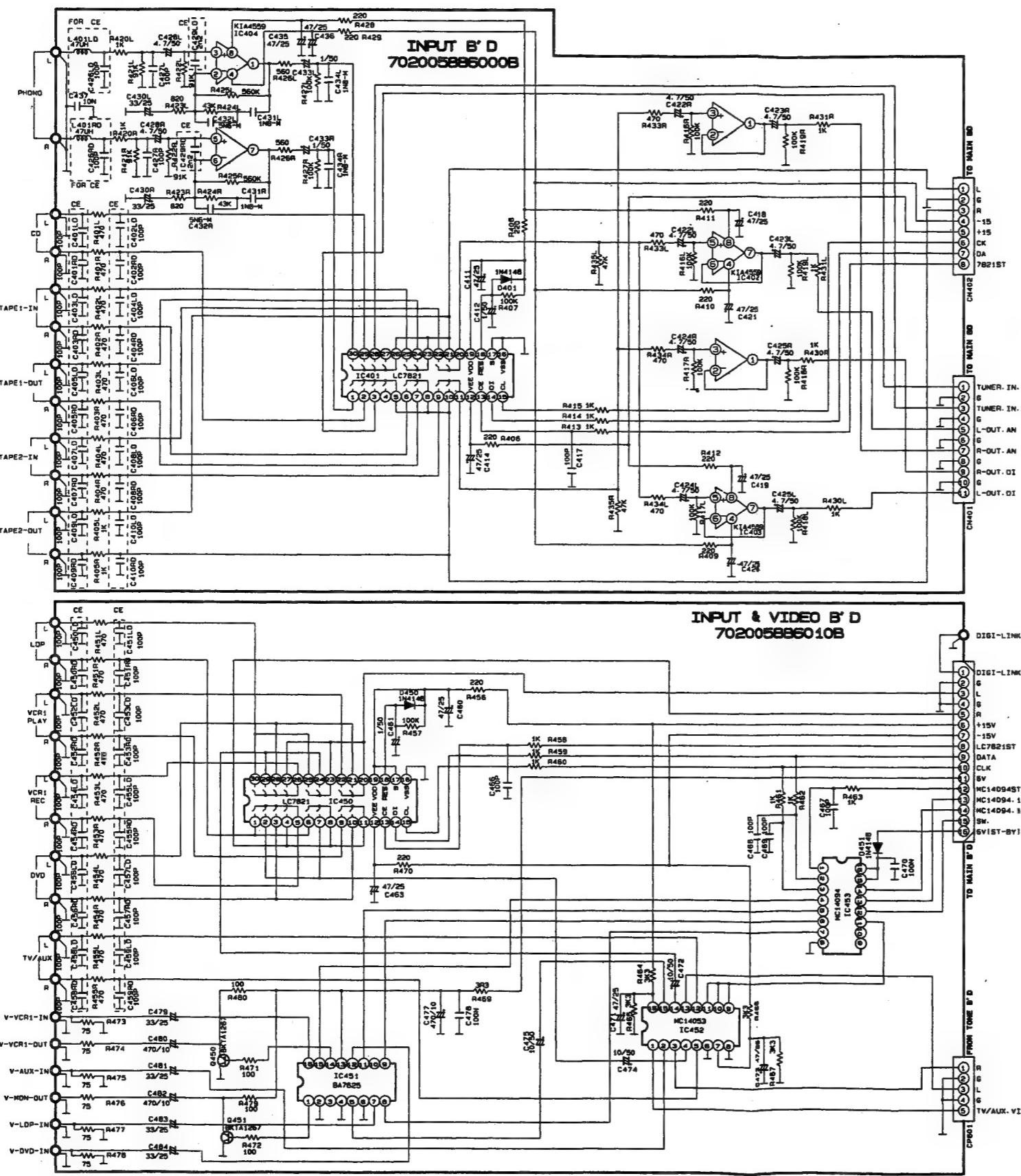
## **SCHEMATIC DIAGRAM (V)**

**Model No. : R-925R/R-925RDS**



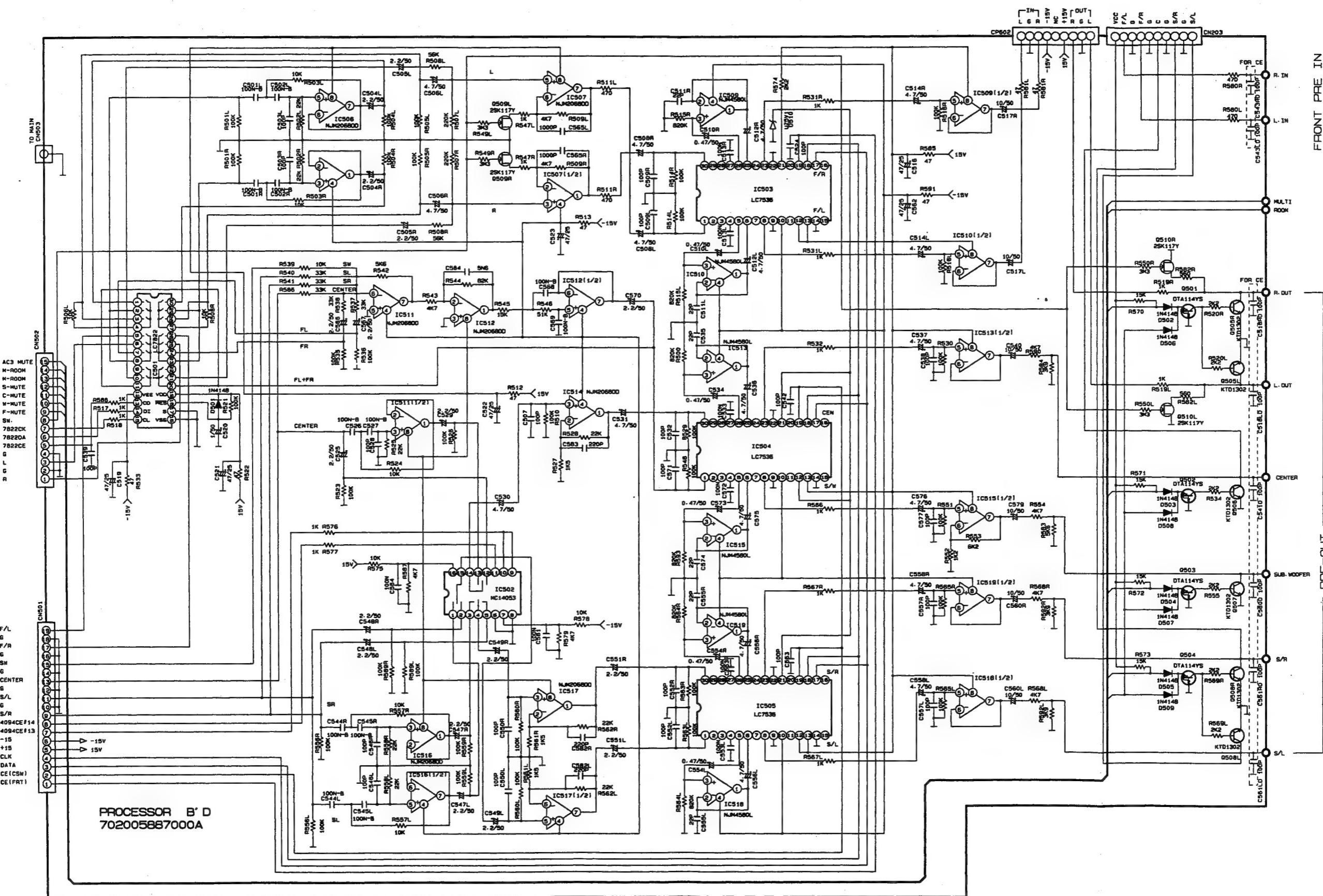
## SCHEMATIC DIAGRAM (VI)

Model No. : R-925R/R-925RDS



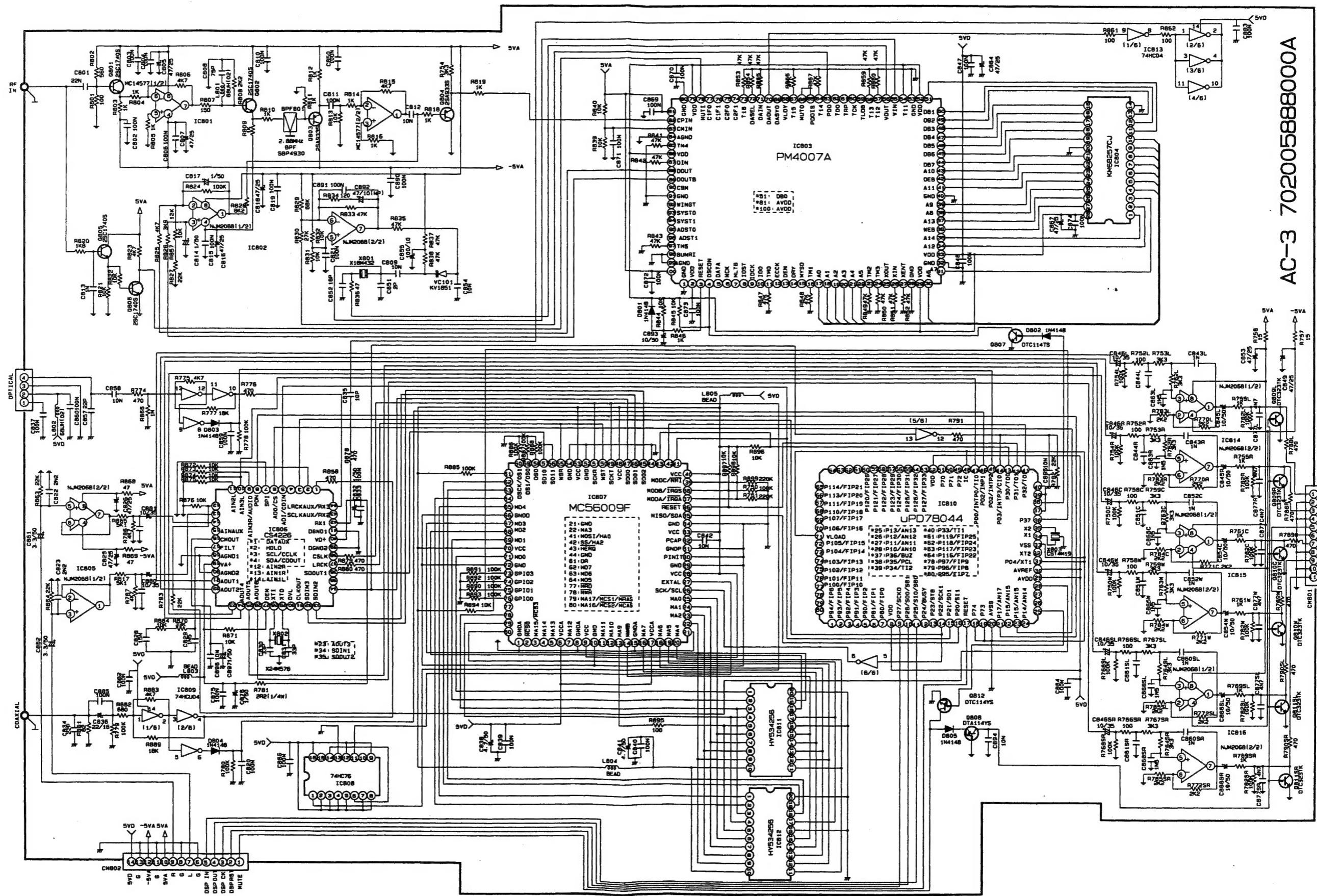
## SCHEMATIC DIAGRAM (VII)

Model No. : R-925R/R-925RDS



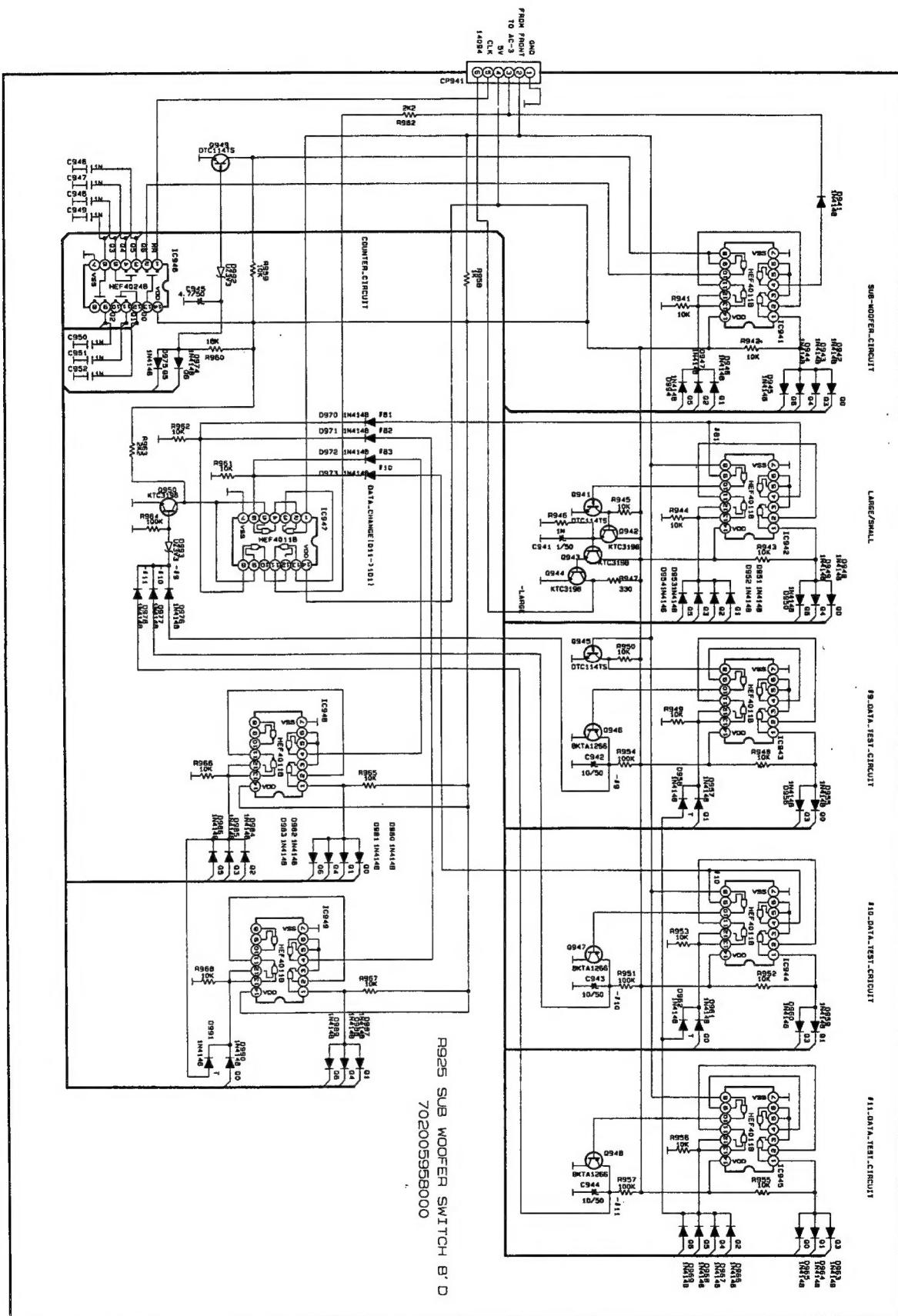
## **SCHEMATIC DIAGRAM (VIII)**

**Model No. : R-925R/R-925RDS**



## **SCHEMATIC DIAGRAM (IX)**

**Model No. : R-925R/R-925RDS**



### AC-3 NEW PARTS for R-925

PART	ITEM	MAKER	REMARK	BLOCK	EXTERIOR
AMP	2SC5200		POWER TR		
	2SA1943		POWER TR		
	2SC1740S		BIAS TR		
	2SC4883				
	2SA1859				
MAIN	SBA60		DIODE		
	LTV817				
	KIA7815				
FRONT	CPU	SONY	SONY 100PIN		
AC-3	XCF56009FJ81	MOTOROLA	DSP		
	CS4226	CRYSTAL	A/D/A CONVERTER		
	PM4007A	PIONEER	DEMODULATOR		
	KM68257CJ-15	SAMSUNG	SRAM		
	MC74HCU04ADR2	MOTOROLA	INVERTER,CHIP		
	MC74HC04AD	MOTOROLA	INVERTER,CHIP		
	SUB CPU	NEC	NEC 80PIN		
	BPF SBP-4930	TDK	2.88MHz		
	KV1851	TOKO	VARACTOR		
	MC74HC76N	MOTOROLA	J-K FF,CHIP		
	MC14577CP	MOTOROLA			
	NJM2068M	JRC	CHIP		
PROCESSOR	LC7536	SANYO	VOL IC		
	NJM4580L	JRC	OP-AMP		
	MC14053BD	MOTOROLA	SWITCHING,CHIP		
	LC7822	SANYO			
	NJM2068DD	JRC	OP-AMP		
INPUT	BA7625				
	MC14094				
	KIA4559				
	LC7821	SANYO			
	HY534256ALJ-60	HYUNDAI	DRAM(1M)		

## PIN CONNECTION DIAGRAM OF DIODES, TRANSISTORS AND ICS

<p><b>BA7625 74HC76 MC14053 MC14094</b></p>	<p><b>LC7821 LC7822 LC7536</b></p>	<p><b>CXP82852 UPD78044 MC56009F</b></p>	<p><b>LM7001/M TDA7330BD</b></p>
<p><b>LA3401 LA1266</b></p>	<p><b>NJM2068</b></p>	<p><b>KIA4559P/KIA7555P NJM4580L</b></p>	<p><b>PM4007A</b></p>
<p><b>CS4226</b></p>	<p><b>KA7815 KA7806 KA7805</b></p>	<p><b>MPSA06</b></p>	<p><b>SK117</b></p>
<p><b>2SA1360 2SC3423</b></p>	<p><b>KA7915 KA7905</b></p>	<p><b>DTA114YS DTC114YS</b>   <b>DTC323TS 2SC3199Y 2SC1740 KTA1267</b></p>	<p><b>2SC3855/2SC3854 2SA1491/2SA1490</b></p>
<p><b>KTC2240/KTC3200 KTC1923Y/KTC3194 KTA1268</b></p>	<p><b>D5SBA60</b></p>	<p><b>ZENER IN4003 IN4148</b></p>	<p><b>SVC321SPA-C</b></p>